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Volume 23 FEBRUARY 1954 Number 2

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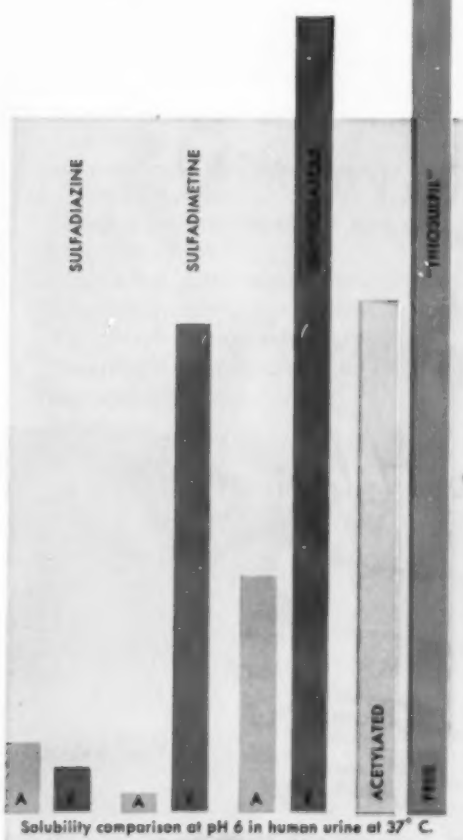

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Volume 23 FEBRUARY, 1954 *Number 2*

CONTENTS

THE ROENTGENOGRAM—ITS PLACE IN PULMONARY DUST DISEASES — Rutherford T. Johnstone, M.D. 45

OPHTHALMOLOGICAL PROBLEMS AMONG RAILROAD EMPLOYEES — Kenneth L. Roper, M.D. 50

PRE-EMPLOYMENT EXAMINATIONS OF 4,506 FEDERAL EMPLOYEES — Tracy Levy, M.D. 55

CORONARY ARTERY DISEASE IN INDUSTRY — W. Gordon Garnett, M.D. 59

VISUAL ACUITY: RESULTS OF A SURVEY OF 10,000 PERSONS — Rex H. Wilson, M.D., and William E. McCormick, M.S. 64

EMPLOYMENT OF THE AGING—APPRAISING THE BARRIERS — Christopher Legge, M.D. 73

LEAD AND LEAD POISONING IN EARLY AMERICA —Lead Compounds — Carey P. McCord, M.D. 75

GROUP DISABILITY INSURANCE — A. M. Wilson 81

PRESIDENT'S PAGE — George F. Wilkins, M.D. 86

ASSOCIATION NEWS: CONFERENCE OFFICIALS 87

ASSOCIATION NEWS: IMA ANNUAL BANQUET 88

A FACET OF MEDICAL EDUCATION 88

FOURTEENTH ANNUAL CONGRESS ON INDUSTRIAL HEALTH 89

NEW COMMISSIONER 89

BOOKS 90

EDITORIALS:

Eleventh International Congress on Industrial Medicine 91

Plight of Medical Education 91

Double Jeopardy 92

Associations: Officers and Directors 4, 6, 8, 10

Personal 6, 8 10, 12, 14

This Month 14

News, Comment, Opinion 43

(Advertisers' Index 52)

INDUSTRIAL MEDICINE AND SURGERY, The Journal of Medicine in Industry (with which are consolidated "The Industrial Doctor" and "International Journal of Medicine and Surgery"): Entered as second class mail matter August 28, 1941, at the Post Office at Chicago, Illinois, under the Act of March 3, 1879. Reentered, October 3, 1949, Additional entry at Sheboygan, Wisconsin. Published on the fifth of each month by INDUSTRIAL MEDICINE PUBLISHING COMPANY, Chicago. STEPHEN G. HALOS, President and Advertising Manager; STEPHEN F. HALOS, Vice-President and Assistant Advertising Manager; A. D. CLOUD, Publisher; CAREY P. MCCORD, M.D., Editor; DORIS FLOURNOY, Editorial Assistant; HAROLD A. HOOPER, Treasurer. Member, Audit Bureau of Circulations. PUBLICATION, EDITORIAL and EXECUTIVE OFFICES, 605 North Michigan Avenue, Chicago 11, Illinois. Subscription $6.00 per year in the United States; $6.50 (U.S. Currency) per year in Canada; $7.00 (U.S. Currency) per year in other countries. Single copies 75 cents. (October, 1953, Anniversary issue, $2.00.) Title Registered in United States Patent Office. Rd. Canada, 1942. Copyright, 1954, by Industrial Medicine Publishing Company, Chicago. CHANGE OF ADDRESS: FOUR weeks' notice required; changes cannot be made without old address as well as new; please furnish zone number for new address if city requires it.

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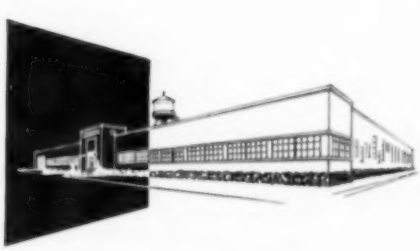

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HERBERT B. ALLEN, M.D., on January 1 assumed his duties as newly-appointed Medical Director for the Maytag Company, Newton, Iowa. DR. ALLEN was born and raised in New York City. After attending Yale University as an undergraduate he went to University of Minnesota Medical School and received his M.D. in 1936. From 1935 to 1938 he interned at Kings County Hospital in Brooklyn. After several years' practice in a suburb of New York, he was called up by the Army and spent two years in Iceland, and then two years in England on the surgical staff of a Station Hospital. From 1947 to 1950 he was Assistant Medical Examiner for the Pennsylvania Railroad in charge of the Long Island Division. For the three years preceding the acceptance of his new position, he was Dispensary Officer of the Joint Brazil U.S. Military Commission in Rio de Janeiro, taking care of American Military and State Department personnel and their families.

THE TECHNICAL STEERING SERVICE, described in this Journal last month (*Indust. Med. & Surg.*, 23:1, 43 (January) 1954) will be under the general direction of CAREY P. MCCORD, M.D., and will have the following representation from the organizations participating in the 1954 Industrial Health Conference, at Hotel Sherman, Chicago, April 24-30, 1954: *Industrial Medical Association*—DUDLEY IRWIN, ROBERT B. O'CONNOR, D. J. LAUER; *American Industrial Hygiene Association* and *American Conference of Governmental Industrial Hygienists*—RALPH G. SMITH, JACK C. RADCLIFFE, H. H. SCHRENK; *American Association of Industrial Nurses*—MRS. MARY E. DELEHANTY, MRS. IRMA TABERSHAW; and *American Association of Industrial Dentists*—EDWARD R. ASTON.

RICHARD E. LEE, M.D., Assistant Professor of Clinical Medicine, Cornell University Medical College, New York, has been appointed Diagnostic Consultant for Standard Oil Company (New Jersey). DR. LEE is Chief, Peripheral Vascular Group, National Health Institute, and Physician-in-Charge, Hypertension Clinic, New York Hospital.

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THE Eleventh International Congress on Industrial Medicine, to be held in Naples, Italy, September 13, 1954, is the subject of an editorial in this issue. DR. ROYD R. SAYERS, one of the delegates, is Vice-President of the International Congress, and DR. ALICE HAMILTON is an Honorary Member. DR. MAX R. BURNELL, Medical Director, General Motors Corporation, Detroit, and DR. HENRY BRIEGER, Jefferson Medical College, Philadelphia, are nominees for membership.

ARTHUR J. VORWALD, M.D., formerly Medical Director, Sarnac Laboratory, has accepted a post as Professor of Occupational Medicine at Wayne University School of Medicine, Detroit. He will assume his new position early in March.

CLIFFORD H. KEENE, M.D., who has been Medical Director for Kaiser Motors Corporation, Willow Run, Michigan, has become associated with the Kaiser Medical Foundation Hospitals, Oakland, California.

NORBERT J. ROBERTS, M.D., Medical Director, Pennsylvania Railroad Company, has been named Assistant Professor of Occupational Medicine in the Department of Public Health and Preventive Medicine, University of Pennsylvania School of Medicine, Philadelphia.

HAROLD S. BARRETT, M.D., Chief, Medical Services Section, Connecticut State Department of Health, has been appointed Deputy Commissioner to succeed DR. ALBERT S. GRAY, who retired July 1. DR. BARRETT served as an officer in the U.S. Public Health Service from 1944 to 1950.

WILLIAM SAMUEL HOFFMAN, M.D., has been appointed Medical Director of the new Health Center to be opened at 333 South Ashland Avenue for Chicago area members of the CIO Amalgamated Clothing Workers of America. Funds for building, equipping, and operating the new Center are to come from contributions made by employers and employees. A panel of 35 to 40 doctors will practice at the Center on a part-time basis. The equipment is to include clinical and laboratory, but not hospital, facilities.

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HEINRICH BRIEGER, M.D., DR.P.H., Professor of Industrial Medicine, Jefferson Medical College, has been appointed Consultant to the Williams Toxicology Laboratories, Inc. DR. BRIEGER will direct and supervise the execution of all projects, in cooperation with MR. WILLIAM A. HODES, who has been associated with DR. BRIEGER for many years. In addition to routine toxicologic tests, the Laboratories specialize in work requiring original research, with inhalation experiments as one of the main activities.

WORLD MEDICAL ASSOCIATION, at its Seventh General Assembly, in Holland, in September, 1953, adopted resolutions authorizing the Secretary-General to explore ways and means of implementing a program on industrial and occupational medicine on an international level. In collaboration with the AMA Council on Industrial Health, WMA's first meeting toward this objective will be held February 11, 1954, at Carnegie Endowment International Center, 345 East 46th Street, New York City.

DR. ROSS A. MCFARLAND, Associate Professor of Hygiene at Harvard, was the recipient of the Flight Safety Foundation's 1953 Award, given him at the annual dinner of the Foundation at San Bernardino, California, December 14. The Award was made for his "comprehensive and monumental" book, "Human Factors in Air Transportation." In this book, published earlier in the year, Dr. McFarland emphasized that "human engineering" must play an important part in the design of

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CONTRAINDICATIONS: None except premature application on wet, exudative lesions.

APPLICATION: Twice daily for 10 days to two weeks to build up protective layer. Continued protection can then be maintained with a single application every one or two days. Massage into skin gently and over entire area; avoid actual rubbing in any one region; smooth in until no longer visible. When used on hands, apply also under fingernails.

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aircraft cockpits and truck and bus cabs if accidents caused by the mismatching of men and machines are to be reduced."

MAX R. BURNELL, M.D., Medical Director, General Motors Corporation, addressing the Seventh Annual Michigan Rural Health Conference, at Saginaw, January 14, stressed the great and increasing emphasis being placed on health programs by industry, and described how industrial health programs reach into, and are important to, the community.

E. H. CARLETON, M.D., Medical Director, Inland Steel Company, published an article last year on "What Constitutes a Compensation Case" (*J. Iowa M. Soc.* (August) 1953). This article has attracted much attention. Among other favorable mentions is the condensation in *Current Medical Digest*, December, 1953.

OCCUPATIONAL Health Nursing Section is the new name of National Safety Council's Industrial Nursing Section. The change, approved by the Council's Industrial Conference at a recent meeting, is intended to bring the title in line with other groups in the same field. Among such groups are National League of Nursing, which now uses the term occupational health nursing, and Yale University School of Nursing which offers a graduate course in occupational health nursing.

UNIVERSITY of California Extension Spring classes in Los Angeles include two nursing classes and a group of related courses. MRS. HELEN L. SALMON, Industrial Nurse Consultant with the Los Angeles City Health Department, and member of the Division of Occupational Health, will conduct a course in Development and Principles of Industrial Nursing, starting Thursday, February 18, in the cafeteria of the Los Angeles City Health Department (Hollywood-Wilshire Health Center), 6501 Fountain Avenue. Eighteen consecutive weekly meetings will make up the course, which is to be an interpretation of in-plant services and the functions of the nurse in industry. MISS RUTH P. A. FREET, R.N., Asistant Professor of Nursing at U.C.L.A., conducts an Extension course on The Nurse in the Hospital Nursing Service, which meets in West Los Angeles on Thursdays from 5:30 to 7:30 starting February 18.

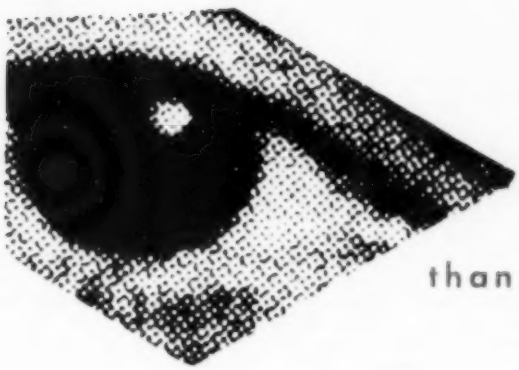
MELLON Institute of Industrial Research announces the availability in reprint form of two recent publications. One is the article by DR. DANIEL C. BRAUN on "The Importance of Industrial Medical Departments as a Management Tool," published in *Advanced Management*. The other is the study of C. P. CARPENTER, U. C. POZZANI and C. S. WEIL on "Toxicity and Hazard of Diisobutyl Ketone Vapors," published in *AMA Archives of Industrial Hygiene and Occupational Medicine*, October, 1953. These reprints may be had for the asking; address Mellon Institute, 4400 Fifth Avenue, Pittsburgh 13.

NATIONAL Insurance Institute Against Industrial Accidents, Rome, Italy, to celebrate the seventieth anniversary of its foundation, has sponsored the reprinting of the work of Bernardino Ramazzini: "De Morbis Artificum Diatriba," a reprinting which, coinciding with the extension of insurance protection to 40 industrial illnesses, besides silicosis and asbestosis, is intended as homage to the outstanding scientist, the Father of Industrial Medicine in the modern conception. —Translation.

NATIONAL Association of Manufacturers points out that the benefits of a company's health service "go far beyond the walls of its plant." They not only protect the worker's health at home, but also promote community good will. Companies are urged to improve and expand plant health programs, make hospitalization and medical pre-payment plans available to employees, and encourage improvement of community health service and facilities. These and other matters are contained in a policy statement on "Industrial Health and Medical programs." Copies are available from the National Association of Manufacturers, Industrial Health and Safety Committee, 14 West 49th Street, New York 20.

CHRISTOPHER LEGGO, M.D., Medical Director, California and Hawaiian Sugar Refining Corporation, Crockett, California, had an article in *Industrial Medicine and Surgery* for June, 1953, entitled "Resentment—An Obstacle To Recovery." This has attracted wide attention, and has been liberally commented upon and frequently quoted. The latest comment appeared in the *Chicago Sunday Tribune*, December 6, 1953. On the editorial page, in his column, "How To Keep Well," DR. THEODORE R. VAN DELLEN, *Tribune* Medical Director, summarizes DR. LEGGO'S article under the title "Resentment At Work." DR. VAN DELLEN'S comment concludes: "Industrial physicians often sense to the day when an industrial patient consults a lawyer and files a claim. Up to that time those with a backache, for example, are cooperative, friendly, and making normal improvement when suddenly the attitude changes. They appear uncomfortable in the presence of the plant physician and there is a definite increase in the number of complaints, which are usually bizarre and somewhat atypical. The pain shifts or spreads to structures not previously involved. In the lingo of the industrial physician, the pain in the back now becomes 'a lawyer in the back.' The medico also admits that when the doctor's patient becomes a lawyer's client there is a race between the physical recovery on the one hand and financial recovery on the other. Needless to say, the lawyer usually wins."

MINNEAPOLIS *Star*, November 4, 1953, in its "Town Toppers," had the following about W. E. PARK, M.D.: "Nearly a century and a half ago a Connecticut physician moved to Canada. Now his great great grandson, WILFORD EDISON PARK, also a doctor, has crossed the border to take an active part in Minneapolis industrial health work. Born on an Ontario farm March 27, 1901, PARK earned his medical degree at University of Toronto in 1927 and was a country doctor until 1942, when he joined the medical staff of a World War II shell loading plant. His special assignment was to overcome TNT poisoning that hit about 150 workers every week. He installed methods which reduced the cases to about three a month. He was then called to head the health services of the Canadian atomic energy project at Chalk River, before Minnesota's State Health Department brought him here in 1950 as Director of its Industrial Health Division. In May, 1952, he joined the Minneapolis Health Department to help expand its industrial



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1. Spies, T. D.; Stone, R. E.; Garcia-Lopez, G.; Lopez-Toca, R., and Reboredo, A.: Therapeutic Indications for Vitamins in Mixtures, Postgrad. Med., 10:269 (Oct.) 1951, p. 269

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Niacinamide	25 mg	Magnesium	6 mg
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Calcium Pantothenate	5 mg	Phosphorus	165 mg
Mixed Tocopherols (Type IV)	5 mg	Potassium	5 mg
		Zinc	1.2 mg

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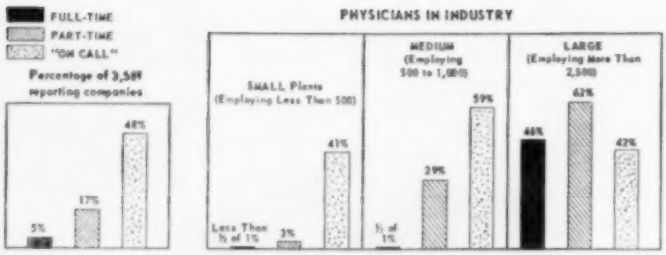
health work. A month ago a group of doctors organized the Minnesota Academy of Occupational Medicine and Surgery and chose him as the first President. He's a member of the county, state and national medical societies and of several public health groups. He also is consultant to the Hennepin County Tuberculosis Association, a member of the mayor's committee on employment of the handicapped, and active in civil defense."

The Tremendous Strides

CHICAGO TRIBUNE, January 19, 1954, says editorially, "The most convincing argument against the Federal government expanding its health activities was given by President Eisenhower himself, in his citation of statistics on the tremendous strides made by medicine in the last half century. In 50 years the average life span has increased by 19 years. Deaths from infectious diseases are fewer than a tenth of what they were in 1900. Deaths of mothers in childbirth have been reduced by seven-eighths since 1916, infant mortality by more than two-thirds. The contributions of the Federal government to every one of these advances have been negligible or nearly so." The following figures indicative of "the tremendous strides made by medicine in the last half century" are from "Going Ahead Toward Better Health and Longer Life," a bulletin of Metropolitan Life Insurance Company: "One good yardstick for measuring the success of public health effort is the expectation of life at birth. In 1909, when Metropolitan Life Insurance Company began its program of health and safety work, the expectation of life at birth among industrial policyholders was six years less than that for the general American or Canadian population. This was a major reason why Metropolitan started its fight against avoidable illness and premature death. The average industrial policyholder has long since caught up with the average citizen in life expectancy, and many of life's major threats have been all but eliminated. Metropolitan takes much satisfaction from its participation in the nation-wide effort that produced these noteworthy results, which are also indicated by the comparative mortality rates in the table at the bottom of the page.



Survey Percentages

NATIONAL Association of Manufacturers, in a recent survey, found that more than half of the 3,589 responding companies reported in-plant medical services. The chart (above) indicates the percentages, among the responding companies, of full-time, part-time and/or on-call physicians.

—*Medical Advance*, November, 1953.

"PUBLIC HEALTH IS PURCHASABLE"
EDUCATIONAL CAMPAIGNS AND MORTALITY AMONG METROPOLITAN INDUSTRIAL POLICYHOLDERS

Cause of Death	Death Rate Per 100,000* At Start of Special Control Program		To Date		Percent Decline
All Causes—Total	1911	1253.0	1952	652.4	47.9
1. Puerperal diseases	1911	19.8	1952	1.4	92.9
2. Tuberculosis	1911	224.6	1952	13.5	94.0
3. Typhoid fever	1911	22.8	1952	.01	99.9
4. Communicable diseases of childhood†	1911	58.9	1952	.5	99.2
5. Diarrhea and enteritis	1911	27.9	1952	2.8	90.0
6. Diphtheria	1925	10.6	1952	.1	99.1
7. Appendicitis	1933	13.2	1952	1.5	88.6
8. Motor-vehicle accidents	1934	22.2	1952	16.4	26.1
9. Home accidents	1934	14.9	1952	6.9	53.7
10. Pneumonia	1936	68.7	1952	15.3	77.7
11. Syphilis	1940	11.7	1952	2.7	76.9
12. Diabetes‡	1940	29.0	1952	14.0	51.7
13. Occupational accidents of civilians	1942	7.2	1952	3.6	50.0

* Based on Weekly Premium Industrial for the years prior to 1936.
† Measles, scarlet fever, whooping cough, diphtheria.
‡ The rate for 1952 is not strictly comparable with that for 1940 because of changes in classification procedure.

This Month

Misocapnists

JOHN GEIGER, INS Science Writer, in a syndicated article, "Cancer Tests May Only Prove That Mice Shouldn't Smoke," begins as follows: "Early in 1953, something in cigarettes caused cancer in 36 mice, non-smokers all. Today the mice are dead, but famous—because they are the core of a key experiment in the cigarettes-and-cancer controversy. But their place in cancer history still is undetermined. They may have the first proof that something in cigarettes is a carcinogen —a cancer-causing chemical—of significance to humans. Or they may have demonstrated merely that mice shouldn't smoke." The scientific name for non-smokers is "misocapnist." Definitely, all mice are "misocapnists." If, as alleged, they have turned up with skin cancers as the result of long continued experiments, possibly they only responded in misocapnist mode to the repeated irritations they were powerless to avoid. Important as the matter is —and however prolific of funds for research it may seem to experimenters eager to "get into the act"—it should be emphasized, as MR. GEIGER points out, that "Tobacco tar has been carefully checked already for evidence that it contains any of the known cancer causers—and none could be found." The burden of proof is not on the tobacco companies. Yet they long have been and are now financing extensive research, not as a matter of being on the defensive, but in a sincere effort to learn the facts. Meanwhile, it is well to remember DR. HUEPER'S authoritative statement, "It may be concluded that the existing evidence neither proves nor strongly indicates that tobacco smoking, and especially cigarette smoking, represents a major or even predominating causal factor in the production of cancer in the respiratory tract."

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Kountz, W. B.: Ann. Int. Med. 35:1055, 1951.

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- **Scleritis**
- **Iritis and other conditions responsive to topical adrenocortical hormone therapy**

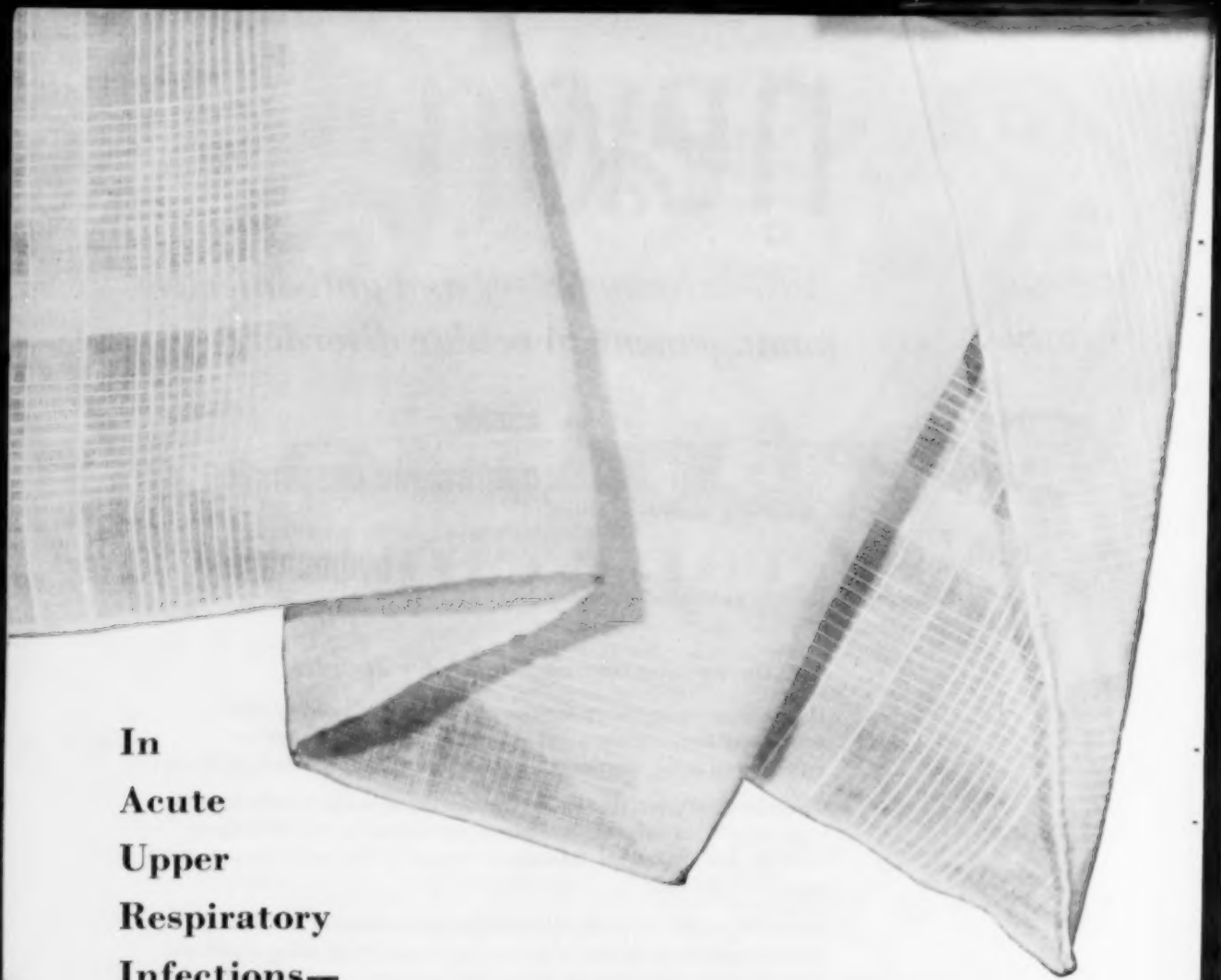
supplied: Each cc. of CORTRIL Acetate Ophthalmic Suspension with TERRAMYCIN, sterile, contains 15 mg. of CORTRIL acetate and 5 mg. of TERRAMYCIN hydrochloride, in amber bottles of 5 cc. with a sterile eye dropper.

references:

1. Boland, E. W.: Ann. Rheum. Dis. 12:125, 1953. 2. Boland, E. W.: California Med. 77:1, 1952. 3. Laval, J.: A.M.A. Arch. Ophth. 59:299, 1953. 4. McDonald, F. R.; Leopold, I. H.; Vogel, A. W., and Mulberger, R. D.: A.M.A. Arch. Ophth. 49:400, 1953. 5. Steffensen, E. H.: J.A.M.A. 159:1660, 1952.

Pfizer

PFIZER LABORATORIES
Division, Chas. Pfizer & Co., Inc.
Brooklyn 6, New York



In
Acute
Upper
Respiratory
Infections—

White's

A-P-CILLIN

Contains three established ingredients
for their combined attack.

Provides symptomatic relief *PLUS* the prevention and
control of secondary infection.

For the convenience of your patients,
each A-P-Cillin tablet provides:

A.P.C.—for its analgesic-antipyretic action

Acetylsalicylic acid—2½ gr.

Phenacetin—2 gr.

Caffeine—½ gr.

Antihistamine—for mild sedation and symptomatic relief, particularly from profuse nasal secretions

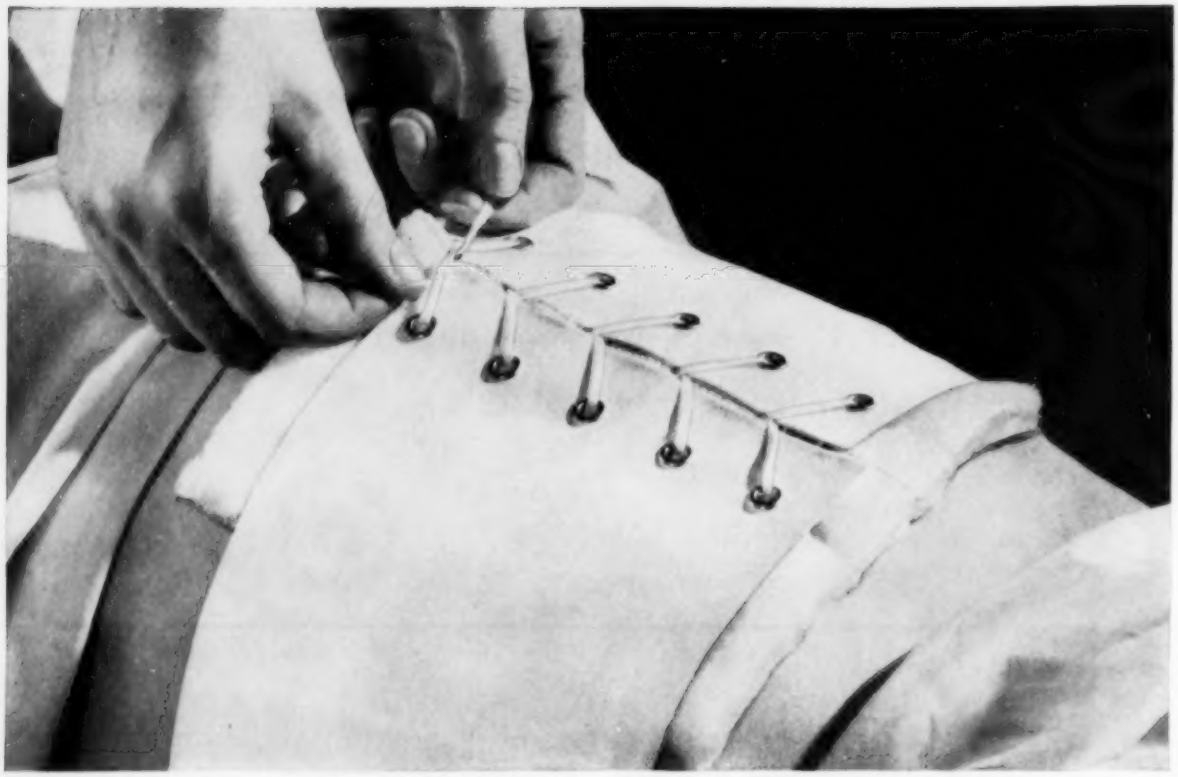
Phenyltoloxamine dihydrogen citrate—25 mg.

Penicillin—for prevention and control of secondary infections

Procaine penicillin G . . . 100,000 units.

Dosage: Usual adult dosage is 2 tablets t.i.d. one hour before or two hours after meals continued for at least three days.

WHITE LABORATORIES, INC., KENILWORTH, N. J.



Especially valuable in heavy drainage cases, *Curity* Ready-Made Adhesive Ties are easy to use for either "Montgomery straps" or "adhesive corsets." Simply cut lengths desired, apply adhesive section to skin, and lace dressing firmly over wound. To change dressings, just untie, replace pad and retie.

CURITY Ready-Made Adhesive Ties

SAVE ADHESIVE...SAVE NURSE TIME...SAVE MONEY

...with the finest Curity adhesive ever made.

Why waste adhesive—and add to patient discomfort—by replacing a complete adhesive strapping with each physician's examination or dressing change?

And why waste valuable nurse time making your own adhesive ties when *Curity* Ready-Made Adhesive Ties will *more than pay for themselves.*

Made with finest *Curity* Adhesive, these ready-made ties stay on for days . . . reduce your adhesive costs up to 95 per cent in heavy drainage cases.

New *Curity* adhesive mass gives added sticking power, yet comes off clean when removed. Helps eliminate tape shifting, corner curling and wrinkling without loss of desired flexibility. And you can't buy a *less irritating* adhesive!

Supplied in 5-yard rolls, both 9 inches wide (9 rolls per case) and 5½ inches wide (18 rolls per case), with metal eyelets at 1¼-inch intervals.

FOR STILL GREATER SAVINGS—1. Order your Adhesive Ties in combination with *Curity* Adhesive for best quantity discounts; and 2. make *Curity* Adhesive Ties widely available—the more they are used the greater the saving.

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REG. U.S. PAT. OFF.

ADHESIVE TIES

BAUER & BLACK

Division of The Kendall Company
309 West Jackson Blvd.
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CORICIDIN

controls colds...curbs complications

New

...complicated colds

combats secondary invaders

antibiotic + antihistaminic, analgesic, antipyretic

...simple colds

most widely prescribed preparation for prevention and treatment of symptoms

...and for pain

valuable in sinusitis, headache, myalgia, neuralgia, pleurisy, bursitis, grippe

*Subject to Federal Narcotic Regulations.

Each CORICIDIN® Tablet contains CHLOR-*TRIMETON*® Maleate, aspirin, acetophenetidin, and caffeine.

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CORICIDIN

FULL SPEED AHEAD in TISSUE REPAIR

DESITIN®
OINTMENT
the pioneer external cod liver oil therapy

in **wounds** (especially slow healing)
ulcers (decubitus, varicose, diabetic)
burns, perianal dermatitis
non-specific dermatoses

DESITIN Ointment *proves in everyday practice its ability to ease pain, renew vitality of sluggish cells, and stimulate smooth tissue repair in lacerated, denuded, chafed, irritated, ulcerated tissues—in conditions often resistant to other therapy.*[1-3]

Protective, soothing, healing, Desitin Ointment is a non-irritating blend of high grade, crude Norwegian cod liver oil (with its unsaturated fatty acids and high potency vitamins A and D in proper ratio for maximum efficacy), zinc oxide, talcum, petrolatum, and lanolin. Desitin Ointment does not liquefy at body temperature and is not decomposed or washed away by secretions, exudate, urine or excrements. Dressings easily applied and painlessly removed.

Tubes of 1 oz., 2 oz., 4 oz., and 1 lb. jars.

write for **samples** *and literature*

DESITIN CHEMICAL COMPANY
70 Ship Street • Providence 2, R. I.

1. Behrman, H. T., Combes, F. C., Bobroff, A., Leviticus, R.: Ind. Med. & Surg. 18:512, 1949.
2. Turell, R.: New York St. J. M. 50:2282, 1950.
3. Heimer, C. B., Grayzel, H. G., and Kramer, B.: Archives Pediat. 68:382, 1951.

A physiologically balanced formulation of three well known and widely used compounds:

Neo-Synephrine® HCl, 0.5%
dependable decongestant

Thenfadil® HCl, 0.1%
powerful antihistaminic

Zephiran® Cl, 1:5000
wetting agent and antibacterial

Now available in convenient, non-breakable plastic squeeze bottle

NEW

NTZ Nasal Spray

TRADEMARK

for

Rapidly Effective
No Antibiotic Sensitization

COLDS
SINUSITIS
ALLERGIC RHINITIS

DELIVERS FINE EVEN SPRAY
LEAK PROOF

Supplied in squeeze bottle of 20 cc., prescription packed with removable label.

NTZ Nasal Solution also supplied in glass bottles of 30 cc. (1 fl. oz.) with dropper and 1 pint (16 fl. oz.)

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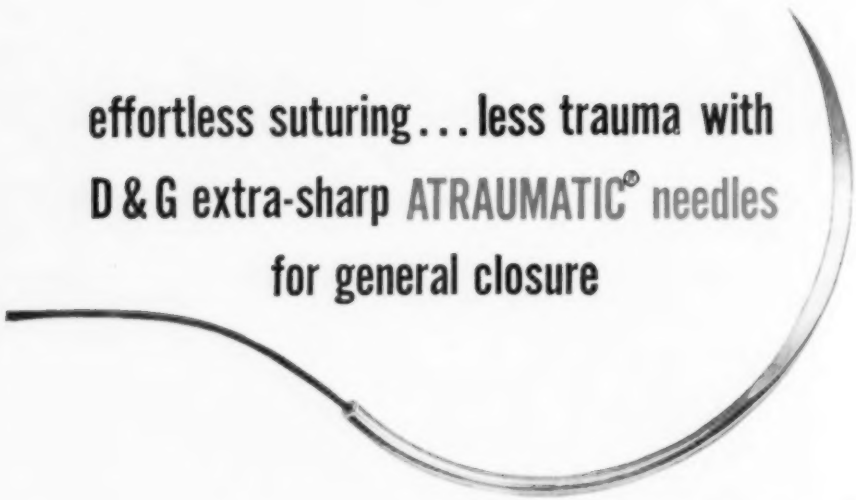
Neo-Synephrine, Thenfadil and Zephiran, trademarks reg. U.S. Pat. Off., brand of phenylephrine, dehydroisoamino and benzalkonium chloride (refined), respectively.

effortless suturing... less trauma with D & G extra-sharp ATRAUMATIC® needles for general closure



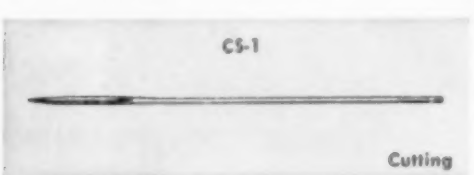
C-10, *three and one-half times enlarged*

Did you know that these 9 temper-tested, hand-finished D & G Atraumatic needles are combined with a *variety* of suture materials? More and more surgeons use them for general closure and ob.-gyn. surgery because there is a fresh, sharp needle for each situation, no tug to clear the needle, less injury to tissues. Important, too—no threading, no dropped needles.

Study the needles illustrated here and ask your suture nurse for your selections. D & G Atraumatic needle-sutures simplify inventory and save nurses' time.

Atraumatic needles replace these eyed needles

Use ½ Circle Taper Point instead of: Mayo Catgut; Mayo Intestinal; Murphy Intestinal; Ferguson; Kelly. ***Use ½ Circle Cutting or Trocar Point in place of:*** Regular Surgeons; Fistula; Mayo Trocar; Martin's Uterine.



general closure sutures

D & G "TIMED-ABSORPTION" SURGICAL GUT NON-BOILABLE:

No.	Type	Length	Needle	Sizes
1509	A, Plain	27"	T-9	00 to 1
1546	C, Med. Chromic	27"	T-9	000 to 2
1508	A, Plain	27"	T-12	00 to 1
1548	C, Med. Chromic	27"	T-12	000 to 2
1561	C, Med. Chromic	27"	T-18	000 to 1
1563	C, Med. Chromic	27"	T-19	00 to 1
1547	C, Med. Chromic	27"	C-9	000 to 2
687	C, Med. Chromic	27"	C-10	000 to 2
689	D, Extra Chromic	27"	C-10	00
685	D, Extra Chromic	27"	C-12	0 to 2
693	C, Med. Chromic	27"	R-1	00 to 1
691	D, Extra Chromic	27"	R-1	00, 0

ANACAP® SILK:

No.	Material	Length	Needle	Sizes
1378	Black Braided Silk	30"	C-9	000 to 1
1379	Black Braided Silk	30"	T-9	000 to 1
1380	Black Braided Silk	30"	CS-1	000, 00, 0
1397	Black Braided Silk	30"	T-12	000 to 2

C-9

Cutting

C-10

Cutting

C-12

Cutting

R-1

Trocar

Need program material for staff meetings?
Request films from D & G Surgical Film Library.
Write for catalog.

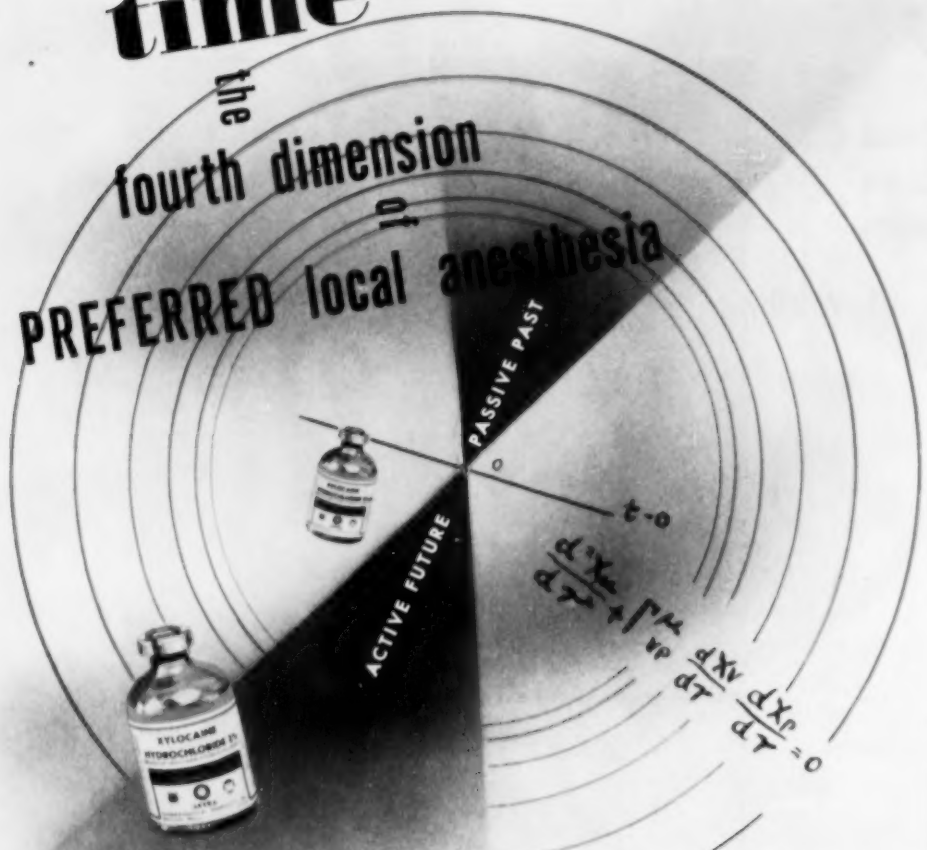
Davis & Geck INC.

a unit of American Cyanamid Company

Danbury, Connecticut

time

the fourth dimension in PREFERRED local anesthesia



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Stocked by leading wholesale druggists and surgical supply houses as a ½%, 1% or 2% solution without Epinephrine and with Epinephrine 1:100,000. 2% solution is also supplied with Epinephrine 1:50,000. All solutions dispensed in 50cc. and 20cc. multiple dose vials, packed 5x50cc. or 5x20cc. to a carton.

Xylocaine® Hydrochloride (Astra) merits special consideration by the busy anesthesiologist and surgeon. Profound in depth and extensive in spread, its well-tolerated effect is more significantly measured by the time saved through its remarkably fast action, by which so much normally wasted "waiting time" is converted to productive "working time".

XYLOCAINE® HCL

Pronounced Xī lo'cain

(Brand of lidocaine hydrochloride*)

AN AQUEOUS SOLUTION

A 4th dimensional approach to preferred local anesthesia

Write department S6 for complete bibliography

ASTRA PHARMACEUTICAL PRODUCTS, INC. WORCESTER, MASS. U.S.A.

*U.S. Patent No. 2,441,498

In dysmenorrhea

Edrisal* relieves the pain

"'Edrisal' was more effective than any other analgesic previously used . . ."

Wells, R. L.: M. Ann. District of Columbia 20:360.

'Edrisal' relieves the cramps

"The most satisfactory antispasmodic for use in spastic dysmenorrhea is, in my experience, Benzedrine† Sulfate . . ."

Janney, J. C.: Medical Gynecology. ed. 2, Philadelphia, W. B. Saunders Co., 1950, p. 365.

'Edrisal' relieves the depression

"Mental depression was always relieved."

Hindes, H. J.: Indust. Med. 15:262.

Each 'Edrisal' tablet contains: 'Benzedrine' Sulfate (racemic amphetamine sulfate, S.K.F.), 2.5 mg.; acetylsalicylic acid, 2½ gr.; and phenacetin, 2½ gr.

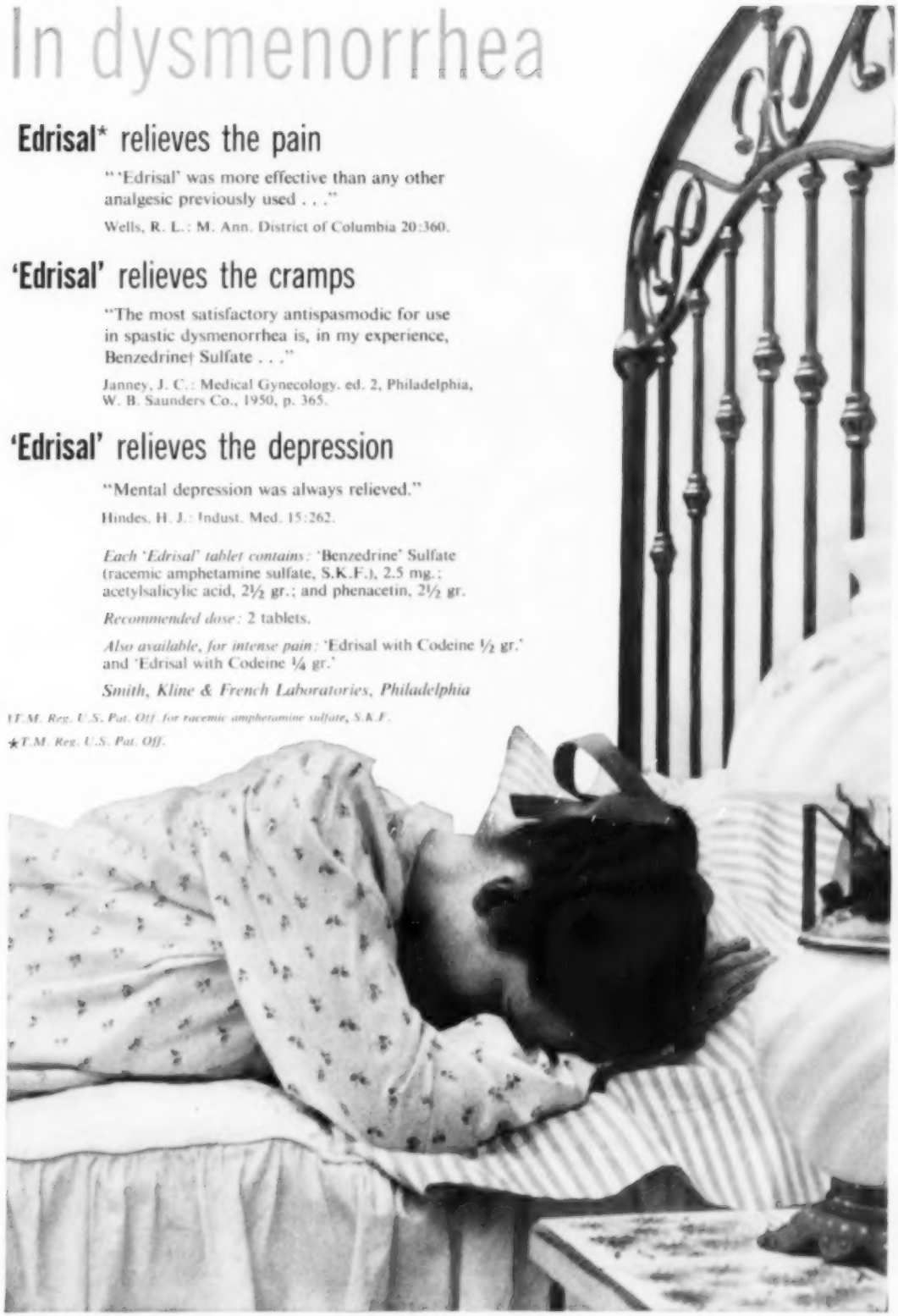
Recommended dose: 2 tablets.

Also available, for intense pain: 'Edrisal with Codeine ½ gr.' and 'Edrisal with Codeine ¼ gr.'

Smith, Kline & French Laboratories, Philadelphia

†*T.M. Reg. U.S. Pat. Off. for racemic amphetamine sulfate, S.K.F.*

★*T.M. Reg. U.S. Pat. Off.*



Subtle sedation without barbiturate fog

Non-barbiturate Sedamyl® is effective across the whole widely ranging anxiety-tension syndrome . . . effective in 90 per cent of cases.[1] And unlike commonly used sedatives, Sedamyl does not bounce the anxious patient back and forth between hypnosis and hangover. Sedamyl provides mild sedation, relieves anxiety but does not tamper with acuity – Sedamyl patients stay "on the job," stay out of the barbiturate fog. Tebrock[1] says that Sedamyl is an "unusually safe and practical" sedative for daytime use.

sedate with SEDAMYL®

[ACETYLBROMDIETHYLACETYLCARBAMID, SCHENLEY]

relax anxiety, transform tension into a smile

Each Sedamyl tablet provides 0.26 Gm. (4 gr.) acetylbromdiethylacetylcarbamid.

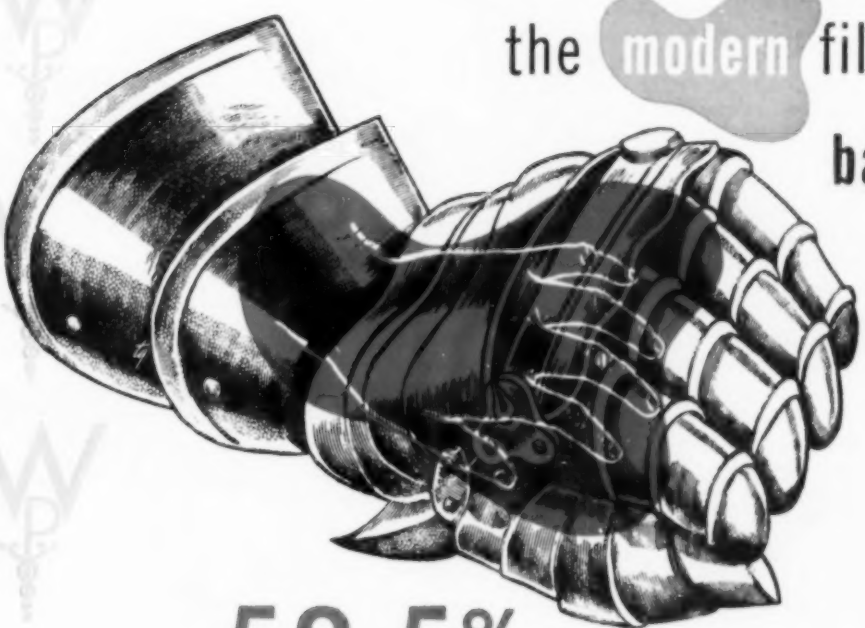
1. Tebrock, H. E.: M. Times 79:760, 1951.

Schenley Laboratories, Inc., *New York 1, New York*

Pro·derma SILICONE

skin protective cream

the modern film barrier



52.5% silicone makes the difference

ONLY *Pro·derma* contains 2 to 20 times more free silicone than any other product available—chemically inert, flexible, greaseless, water and oil repellent.

prevents contact dermatitis

from: water • soap • household cleansers • wool
saliva • urine • rectal and vaginal discharge
cotton • oils • rust preventatives • fuels
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Does not sensitize or irritate

Easily removed with LOWILA cake

Available at pharmacies in 1 oz. tubes and 1 lb. jars

SAMPLES ON REQUEST

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DIVISION OF FOSTER-MILBURN CO.

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A. S. Aloe Company has a fully staffed planning department to help you with layouts and suggested equipment lists for a dispensary of any desired size. There is, of course, no obligation on your part for our complete evaluation of your needs. Wherever your plant may be located, Aloe service and merchandise are standard; you are therefore assured of uniformity of quality and specifications. Illustrated below is a model dispensary consisting largely of Aloe exclusive equipment. Cabinets shown are the famous Moduline —Aloe exclusive steel sectional equipment, which, unlike custom-built fixed equipment, is capable of future rearrangement or expansion, or may be readily moved to new location. Moduline users include: Caterpillar Tractor, Cadillac, American Telephone & Telegraph Co. In planning a dispensary it is an important advantage that all equipment be available from one source. Please write for complete details.

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"Lost time greatly reduced"*

by use of this analgesic for relief of moderate to severe pain

Excellent results in relieving moderate to severe pain caused by industrial disabilities is reported* in 53 percent of 104 patients receiving Phenaphen 'Robins'—a much higher degree of relief than that in a control group receiving a standard aspirin-phenacetin-caffeine preparation. Disabilities included bursitis, tendonitis, tenosynovitis, myositis, neuritis, neuralgia, myalgia, low back syndrome, abrasions, and contusions—conditions that commonly cause lost time because of the difficulty in controlling pain.

An objective of the study was to relieve pain sufficiently to reduce lost time and "still maintain a safe and efficient employe both on the job and while driving home." Not only was Phenaphen found "satisfactory for everyday industrial use," but "the amount of lost time . . . was greatly reduced." It was also concluded that: "Because of the complete absence of side effects, it is justifiable to increase the medication to two tablets every four hours."

*New York St. J. Med. 53:1867, 1953.

Phenaphen®

Robins

(The basic non-narcotic formula)

Each brown and white capsule contains: aspirin 162 mg. (2½ gr.), phenacetin 194 mg. (3 gr.), phenobarbital 16.2 mg. (¼ gr.) and hyoscyamine sulfate 0.031 mg. (1/2000 gr.).

PHENAPHEN with CODEINE PHOSPHATE ¼ gr.
Phenaphen No. 2 — in black and yellow capsules

PHENAPHEN with CODEINE PHOSPHATE ½ gr.
Phenaphen No. 3 — in black and green capsules

A. H. ROBINS CO., INC. • RICHMOND 20, VIRGINIA
Ethical Pharmaceuticals of Merit since 1878

Anytime . . .

Anywhere

Gratifying Relief

in a matter of minutes

Whenever frequency, pain, burning, or urgency occur— at the theatre, or wherever the patient may be . . .

PYRIDIUM affords safe relief, quickly and conveniently, from the distressing urogenital symptoms that accompany cystitis, prostatitis, urethritis, and pyelonephritis. PYRIDIUM is compatible with streptomycin, penicillin, the sulfonamides, and other specific therapy, and may be used concomitantly.

PYRIDIUM®

(Phenylazo-diamino-pyridine HCl)

PYRIDIUM is the registered trade-mark of Nepera Chemical Co., Inc. for its brand of phenylazo-diamino-pyridine HCl. Merck & Co., Inc., sole distributor in the United States.

MERCK & CO., INC.

Manufacturing Chemists

RAHWAY, NEW JERSEY

when nausea and vomiting bring a plea for help . . .

suggest first aid with . . .

EMETROL®

PHOSPHORATED CARBOHYDRATE SOLUTION

a safe, pleasant-tasting, oral antiemetic . . .

effective in 6 out of 7 cases of functional vomiting[1] . . . reduces gastrointestinal smooth muscle contractions physiologically . . . contains no antihistaminics, barbiturates, or other drugs . . . also useful in nausea of pregnancy, and for drug- or anesthetic-induced vomiting

IMPORTANT: EMETROL is stabilized at an optimal physiologic pH level. Dilution would upset this careful balance. For this reason, EMETROL is always taken straight, and no fluids of any kind are allowed for at least 15 minutes after administration.

1. Bradley, J. E., et al.: J. Pediat. 38:41, 1951; idem: Amer. Acad. Pediat., meeting Oct. 16, 1951.

Supplied: In bottles of 3 fl.oz. and 16 fl. oz., at pharmacies everywhere

Kinney®

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KINNEY & COMPANY, INC. • COLUMBUS • INDIANA

In infectious and allergic rhinitis and sinusitis

Biomydrin "is effective as an antibiotic in clearing the nose of pathogenic organisms and purulent secretions. In many cases, sterile cultures were obtained after a brief period of treatment."

Antibiotics & Chemotherapy *3*:299 (March) 1953.

Improvement in 113 of 124 Patients*

Diagnosis	Number of patients	Improved
Chronic catarrhal rhinitis	11	11
Chronic allergic rhinitis	26	25
Right maxillary sinusitis	2	1
Chronic naso-pharyngeal catarrh	6	6
Chronic suppurative sinusitis	3	3
Coryza, Head cold, Catarrhal rhinitis	58	51
Influenza	2	1
Acute catarrh	4	3
Hypertrophic rhinitis	12	12
TOTAL	124	113 (91.1%)

* Eye, Ear, Nose and Throat Monthly *32*:512 (Sept.) 1953.

BIOMYDRIN

The Biomydrin formula

THONZONIUM BROMIDE 0.05%. Synthesized in the Nepera laboratories. Exceedingly potent antibacterial. Greatly enhances the antibiotic activity of neomycin and gramicidin. Reduces surface tension, facilitating spreading and penetrating. Mucolytic.

NEOMYCIN SULFATE 0.1%. Effective against gram-positive and gram-negative organisms.

GRAMICIDIN 0.005%. Effective against gram-positive organisms.

PHENYLEPHRINE HCl 0.25%. Widely preferred vasoconstrictor.

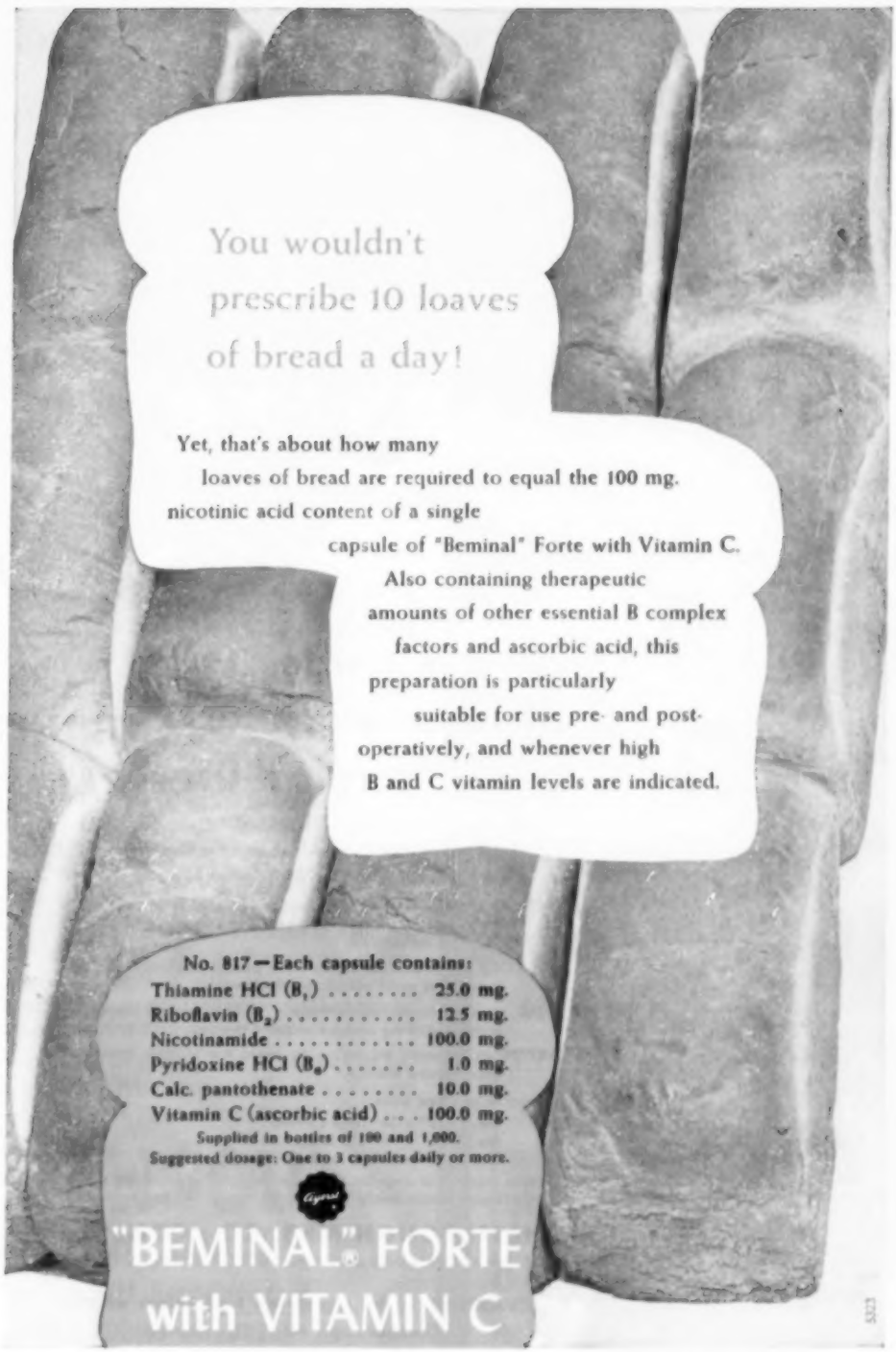
THONZYLAMINE HCl 1.0%. *Therapeutic concentration* of this effective antihistaminic aids in controlling local allergic manifestations.

- Prompt, prolonged shrinkage of nasal mucosa without secondary congestion.
- pH is 6.2. Isotonic and buffered.
- Does not interfere with ciliary activity.
- Spray covers larger area than could be reached by drops.
- Available on prescription only.

DOSAGE: Adults—2 or 3 sprays in each nostril; 4 or 5 times a day as needed, or as directed by physician. Children—1 or 2 sprays in each nostril; 4 or 5 times a day as needed, or as directed by physician.

"BIOMYDRIN" AND "THONZONIUM BROMIDE" ARE TRADEMARKS OF NEPERA CHEMICAL CO., INC.

Nepera Chemical Co., Inc. Pharmaceutical Manufacturers, Yonkers 2, N. Y.


You wouldn't prescribe 10 loaves of bread a day!
Yet, that's about how many loaves of bread are required to equal the 100 mg. nicotinic acid content of a single capsule of "Beminal" Forte with Vitamin C. Also containing therapeutic amounts of other essential B complex factors and ascorbic acid, this preparation is particularly suitable for use pre- and post-operatively, and whenever high B and C vitamin levels are indicated.
No. 817—Each capsule contains:
Thiamine HCl (B_1) ..... 25.0 mg.
Riboflavin (B_2) ..... 12.5 mg.
Nicotinamide ..... 100.0 mg.
Pyridoxine HCl (B_6) ..... 1.0 mg.
Calc. pantothenate ..... 10.0 mg.
Vitamin C (ascorbic acid) ... 100.0 mg.
Supplied in bottles of 100 and 1,000.
Suggested dosage: One to 3 capsules daily or more.
"BEMINAL"® FORTE with VITAMIN C
5323

Ayerst, McKenna & Harrison Limited, New York, N. Y. • Montreal, Canada

Vaseline

TRADE-MARK®

Sterile Petrolatum Gauze Dressings

always sterile, always ready for "1001" surgical uses . . .

Outstandingly successful for burns and abrasions, these sterile-packed, ready-made dressings have countless other uses in surgery. Particularly indicated for:

WOUND COVERING, *as for traumatic injuries and after surgery* . . . to protect from irritation and contamination, to avoid adherence.

PACKING, *as in abscess cavity* . . . to permit healing from the bottom, to meet aseptic precautions.

PLUG, *as after hemorrhoidectomy* . . . to help control bleeding without sticking and subsequent tearing.

DRAIN, *as for septic wounds* . . . to avoid maceration, pressure necrosis and erosion.

Available in three sizes:

No. 1—3" x 36" (6 in carton)
No. 2—3" x 18" (12 in carton)
No. 3—6" x 36" (6 in carton)

Obtain from your regular source of supply . . . insist on the ready-to-use, dependably sterile dressings in the foil-envelopes.

CHESEBROUGH MFG. CO., CONS'D

Professional Products Division • **NEW YORK 4, N. Y.**

VASELINE is the registered trade-mark of the Chesebrough Mfg. Co., Cons'd

The first truly elastic bandage that doesn't "die" in the dryer!

New TENSOR with Heat-Resistant live rubber threads can even be sterilized—and won't lose its stretch

Here's the first truly elastic bandage that heat won't hurt—the first elastic bandage that *doesn't require special laundry care.*

New *Tensor* Elastic Bandages stand temperatures up to 280° F. with no appreciable loss of elasticity. The live rubber threads in *Tensor* are virtually unaffected by the high heat of commercial or hospital dryers. Even in the autoclave, *Tensor* keeps its stretch.

The result: *Tensor* Elastic Bandages last longer—and cost less to use. Even after many, many launderings, *Tensor* will still provide the uniform, steady, easy-to-control pressure that made it famous as the *first* truly elastic bandage.

Now available in hospital bulk put-up at no increase in cost. Why not specify new *Tensor* next time you stock your supply room.

New TENSOR® ELASTIC BANDAGE

Woven with Heat-Resistant live rubber threads

BAUER & BLACK

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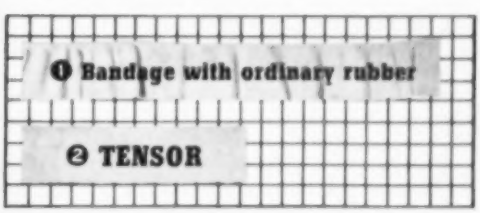
309 West Jackson Blvd., Chicago 6, Ill.

COMPARE THESE ELASTIC BANDAGES



❶ One-foot length of bandage made with ordinary rubber is stretched after high temperature drying and stays stretched. Its elasticity "died" in the dryer.

❷ But one-foot length of heat-resistant Tensor snaps back to its original length, even after prolonged exposure to near scorching heat of commercial dryer.

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DURACILLIN A.S.

(Procaine Penicillin—G in Aqueous Suspension, Lilly)

easy to withdraw . . .

easy to inject . . .

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300,000 or 600,000 units per cartrid

IN SILICONED VIALS

300,000 units per cc., in 1, 5, and 10-cc. sizes

IN STERILE DISPOSABLE SYRINGES

300,000, 600,000, or 1,000,000 units per syringe

QUICKLY AVAILABLE AT YOUR LILLY WHOLESALER

ELI LILLY AND COMPANY, INDIANAPOLIS 6, INDIANA, U. S. A.

INDUSTRIAL MEDICINE AND SURGERY

FEBRUARY, 1954

The Roentgenogram

—ITS PLACE IN PULMONARY DUST DISEASES

RUTHERFORD T. JOHNSTONE, M.D., Los Angeles

EXCLUDING only the pediatrician, the bulk of every physician's practice is composed of persons engaged in some type of occupation including the often overlooked "occupation housewife." Yet knowledge of the disease of workers is restricted to a small portion of the medical profession. The subject of occupational medicine receives scant attention in undergraduate education. Also in the journals and textbooks which reach the doctor's desk the material on occupational diseases is meager.

We in industrial medicine long have lamented the situation in which the subject dear to us has been so ignored. Recently, however, I have reached the conclusion that it is not the paucity of the material that need concern us. Rather, it is the quality that should alarm. Much that is being written on the subject by the physician inexperienced in the field of industrial medicine is almost wholly bad.

The most common source of misinformation comes from the various periodicals devoted either to general medicine or to the specialties in which the presentation is often that of a case history of some unusual death or illness allegedly stemming from an industrial exposure. Frequently such cases are unusual only because they are not common to the experience of the author of the article. Moreover, even though these articles lack factual data or contain false assumptions, they are too often accepted for publication because the editors of our various non-industrial journals, being untutored in the field of industrial toxicology, fail to detect discrepancies.

A second source of misinformation is found in textbooks dealing either with the general practice of medicine or the specialties. The material in these books is usually in sharp contrast to the article in a periodical which presented something allegedly new. The textbook references are invariably observations made previously by someone else. How previously does not sufficiently concern the authors of these books. Often it will be an opinion expressed 50 to 100 years ago, but long since discredited by modern investigation. The hoary unwarranted barnacles still clinging to the descriptions of lead poisoning as found in some textbooks are a good example of this point.

I indulge in this preamble primarily because a similar situation exists regarding the pulmonary dust diseases. In the early part of this century one of industrial medicine's revered pioneers classified the pneumoconiosis as he *then* considered them. Under the sub-title "inorganic dusts" he listed lime, lead, mercury, and other heavy metals. Under "organic dusts" he included benzene, phenol compounds, pollen, feathers, etc. Today he would be the first to rectify his former classification.

But what do we find in the literature of 1951? In a textbook on chest x-ray diagnosis the chapter on "pneumoconiosis" opens with the statement that the aforementioned classification is "most complete and satisfactory," and reproduces it in its entirety. But there is more. The author of this recent text states, "silicosis is common in the metal grinding and polishing industries." (No attempt is made to designate specific processes where silica might be present.) Siderosis is defined as "the lesions occurring in workers with metals, particularly metallic oxides." (This statement would presume that any metal or metallic oxide can cause siderosis.) Or, "the pathologic changes (in siderosis) are due to the presence of silica in the 'iron ore.'" Or, again, "the lungs (in siderosis) show extensive fibrosis."

It is not intended to set apart this book for its misinformation on this subject. Others could be cited. Nor is this criticism made in a mood of acrimony. Rather, it is a zealous attempt to promote the premise that industrial medicine will never be recognized as a distinct specialty unless those of us within rise to defend and define it in a forceful, objective manner. We must serve notice to others against poaching on our reserve unless they have the license of experience. The medical profession adheres to the truth that the tubercle bacillus causes tuberculosis, not malaria. It must also be taught not to intimate that benzene causes a pneumoconiosis, or that a casual exposure to lead produces arteriosclerosis, or other erroneous beliefs *ad infinitum*. Established occupational disease entities must not be destroyed or misshapen by careless, unwitting observations.

Having shot that arrow into the air—with the

Presented at the Thirty-Eighth Annual Meeting of the INDUSTRIAL MEDICAL ASSOCIATION (Symposium on Pneumoconiosis), Los Angeles, April 23, 1953.

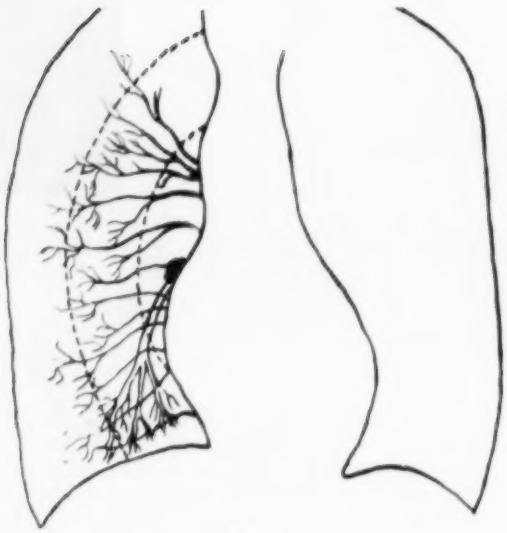

Fig. 1.

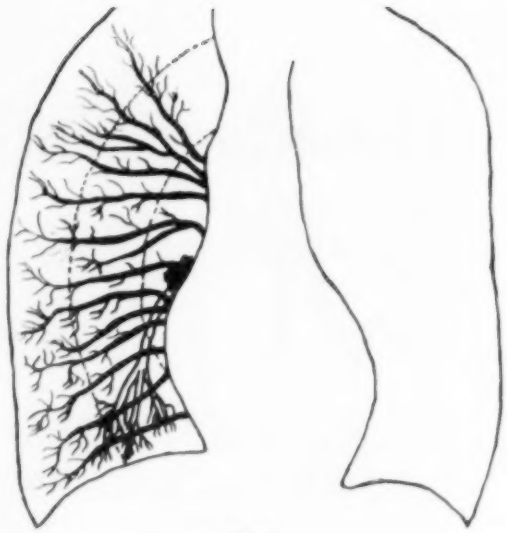

Fig. 2.

hope that it may land appropriately, let us turn to the subject assigned me. I am fully cognizant that this audience is divided into two groups. There are those of you who have had long experience in the field of pulmonary dust diseases. To such my remarks contain nothing new. They lack luster. On the other hand there are many who are just entering the practice of occupational medicine and to whom this subject is new. To them, I will not be carrying coals to Cardiff.

My title calls for a consideration of three aspects of the value of the x-ray film. The first is its place or importance, the second is its interpretation, and the third is its significance in estimating disability.

The Place or Importance of the Roentgenogram

THE value of the x-ray film in the diagnosis of a pulmonary dust disease is obvious. It is *almost* indispensable. However, to rely solely upon this means would have us ignore the occupational history, it would have us neglect to evaluate such factors as regional minerology, the chemistry of the dust involved, the nature of the industrial process engaged in, the concentration, particle size, length of exposure, presence or absence of adequate preventive hygiene, etc. It would have us disregard the various differential diagnostic procedures—an unpardonable error. Let us therefore be disciples of the faith that the roentgenogram is *material evidence* in the diagnosis of a pulmonary dust disease.

Let us also warn that the x-ray is the primary pitfall in the diagnosis of these diseases. Unless we have had graduate training or special experience none of us would presume to translate the intracacies residing in pathology or physiology. But after having made our down-payment on an x-ray machine we feel capable of interpreting what God and Roentgen wrought. In addition, the inexperienced one in this field evidences an unexplainable peculiarity. The average physician does not expect to find consistently or constantly a fracture or foreign body every time he takes a picture of the part injured. But he will almost drool over what he feels certain he will find in the film of one exposed to an industrial dust. With this attitude of anticipation it is certain that minor, non-specific markings will be unduly stressed or falsely interpreted.

In short, the x-ray film should not be used as a by-pass on the highway to diagnosis. It may appear as a quicker, shorter route but too often it leads one into the wasteland of error. Equally unjust to the worker is the failure to utilize the diagnostic value of the roentgenogram. For example, a workman complained that the "dust at work" had impaired his health. He was advised, without benefit of an x-ray, to change his job. Two months later he had a pulmonary hemorrhage due to tuberculosis. His history, had it been taken in the beginning, would have revealed an insignificant exposure to an inert dust. An x-ray would have revealed the true nature of the disease and, instead of the admonition to change jobs, he would have been placed on a proper regime.

Interpretation of the Roentgenogram

IT IS TRITE but not amiss to emphasize that in no other phase of medicine is the perfect film more desirable than in the study of pulmonary disease of whatever origin. The dark film obscures and the light film exaggerates.

The first step in reading the film is to take cognizance of and then disregard such shadows as are caused by the female breasts, the oblique line of the pectoral muscles, especially in the male manual laborer, the sternocleidomastoid muscles, and the reflection of the skin of the neck as seen in the supraclavicular fossa. Time forbids any description of the anatomy of the hilum, mediastinum or lung fields.

From the viewpoint of x-ray interpretation the

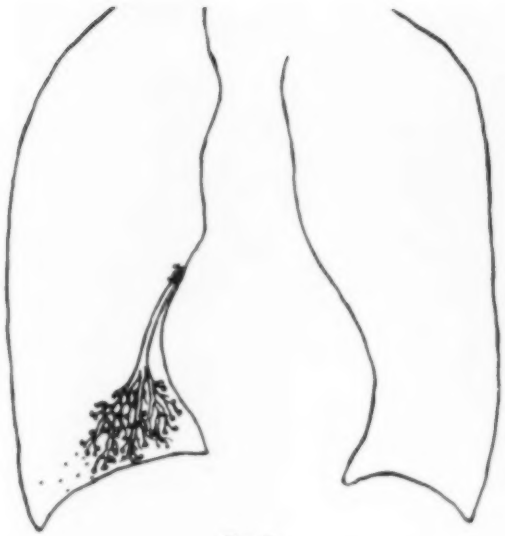

Fig. 3.

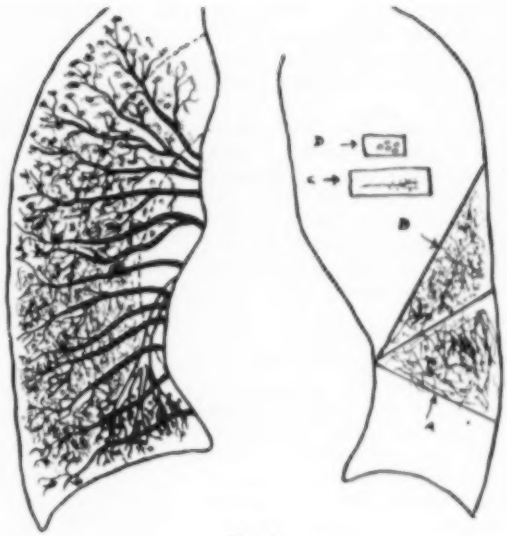

Fig. 4.

lung fields are divided into the upper region including the apices, the middle zone, and the bases. They should also be divided into curving verticle zones, namely, the inner, hilar or root zone, the middle zone, and the outer or peripheral zone (Fig. 1).* Roots of the lung or hila bulge outward from each lateral margin of the mediastinum. Their contour is irregular.

Fanning out from the hilum in all directions are the linear shadows, the thickest of which extend toward the bases, the left being less prominent due to the overlying heart. As these striations extend towards the periphery they become less distinct and are barely seen, if at all, in the peripheral zone.

The first change from the so-called normal lung is when these striations become heavier and extend into the peripheral zone (Fig. 2). With this change the hilar shadows become more prominent. The literature on pneumoconiosis points out that this is evidence of the beginning of the first or prenodular stage. This is certainly true in the pneumoconiotic. But this change is not confined to those unduly exposed to dust. It is likewise evidence of the maturing process. These shadows become exaggerated with each advancing decade of life, as does the blood pressure level. Or they may become evident earlier in life as a result of chronic respiratory infection.

There is another feature of almost every film of the normal adult chest which must not be misinterpreted. In the peripheral zone and more often in the base of the lung are often small, circular shadows which give the appearance of minute calcifications (Fig. 3). These are blood vessels recorded on the film in their axial plane. They simulate pathological beading. When due to blood vessels they will disappear on a subsequent film if the patient's position is slightly rotated.

*These drawings are highly schematic and were prepared for the use of the lecturer in pointing out various features.

The next variation to be noted is one about which there has been controversy as to nomenclature and significance (Fig. 4). In the background of the linear striations there may be noted interlacing lines of various lengths and intensity. For such a change the English investigators coined the word "reticulation." Regardless of the terminology applied, the condition represents a criss-crossing of fine lines to produce a lace-like background. When an exceedingly small segment is greatly enlarged by means of a magnifying lens one will note formations which in the aggregate have what Gardner termed a rough orange-peel appearance. Also, under close scrutiny one can see fine punctate beading along the border of these fine lines.

In some areas of thinking this phase of reticulation or interlacing connotes eventual disability. Against such a contention I protest. Unquestionably it is a stage in the progression of a pneumoconiosis. But it is likewise seen in those who have never had an exposure to an industrial dust. What is equally significant is the fact that it is commonly seen in those exposed to certain inert dusts who never develop subsequent disabling fibrosis. I have observed this condition for years in the periodic examination of the films of cement workers who have spent most of their adult life in the cement industry (Film I). Unless complicated by other factors, the stage of reticulation is associated with no signs or symptoms and should not constitute a basis for compensation.

Leaving behind these non-specific changes, we come to nodulation of the lungs as it occurs in typical silicosis. My assignment does not propose that I discuss certain non-nodular pneumoconiosis such as occurs in the diatomaceous earth workers, or in bauxite workers, or to depict focal emphysema in the coal miner.

Under a given set of circumstances the worker exposed to free silica develops small, round, discrete shadows cast by nodules of fibrous tissue.

The distribution is diffuse, although the middle and upper zones of the lungs are more affected than the basal region (Fig. 5).

The occasional and widely scattered nodule, even though clean-cut and distinct, is not to be confused with silicosis. Primary tuberculosis, histoplasmosis, and even miliary tuberculosis, will present widely separated nodules (Fig. 5-A).

Siderosis is much more likely to be confused with silicosis. Here the occupational history is extremely important. Also is the recognition that the pigmentation from iron dust does not increase the hilar shadow, the nodular shadows are more discrete, and there is no tendency to confluent nodulation.

As the condition resulting from exposure to pure free silica progresses the nodules become larger and their borders fuzzy (Fig. 6). The increase in size is not simultaneously uniform, for one notes small densities mixed with the larger nodules of irregular borders.

Film I.
Age 55—cement industry for 27 years. This film illustrates the absence of any appreciable pathology in one exposed to inert dusts.

Film II.
Age 62—hard rock miner for 36 years. Widespread discrete nodulation together with conglomeration.

The next stage (Fig. 7) is that of conglomerate nodulation where the nodules have fused together to form large, irregular masses of fibrous tissue. These are predominately located in the middle and upper zones. Likewise, in my experience, the largest of these appear in the right lung. At this stage there is a contraction of the lung with emphysema, especially noted in the bases. The diaphragm reveals roughening and tenting.

In the conglomerate stage there is associated infection which may be active or dormant. As this massive conglomerate stage progresses there is greater contraction of the lung tissue, interstitial fibrosis is marked, and there is a loss of lung detail. The individual nodules have become largely occluded and enmeshed. The lung tissue has been pulled into the scar, and bullous emphysema is elsewhere present.

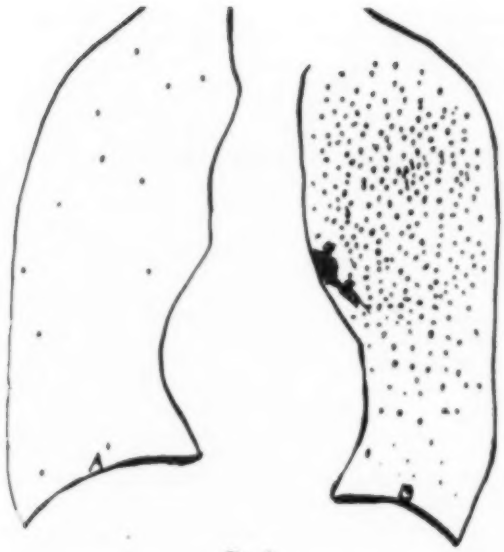

Fig. 5.
A. Calcifications—tuberculosis, histoplasmosis, etc.
B. Simple Nodular Silicosis.

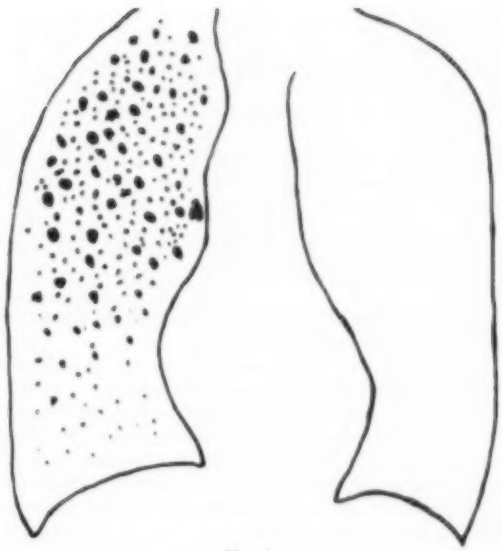

Fig. 6.

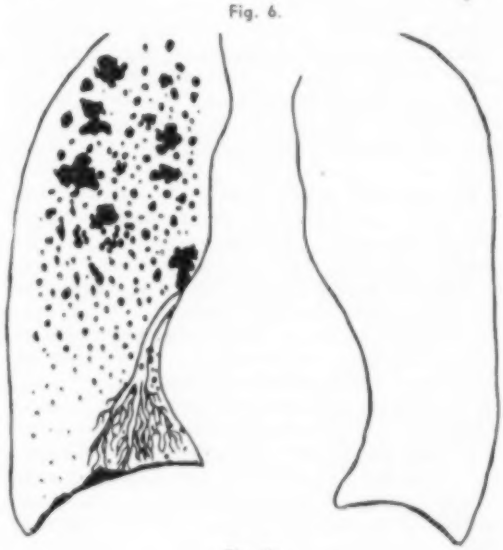

Fig. 7.

The Roentgenogram in Estimating Disability

THE x-ray is not a measuring rod for estimating disability. Involvement of the lungs as revealed by the x-ray and the incapacity to work are not synonomous (Film II). I have the film of a man who had been a hard rock miner for 36 years and last worked in the Golden Queen Mine in California. When I saw him he was complaining of an almost total loss of voice. My suspicion of tuberculosis of the larynx was confirmed by Dr. Simon Jesberg, of this city. The patient had a slight cough and only moderate dyspnea. He died three months after the date of this film. Admittedly this case is unusual, for most men would have had signs of disability much earlier. But to my mind it is also unusual for one to have a true disability with minimal involvement of the lung. Yet there is a school of thought that contends that disability is or may be present when reticulation appears. To me this is influenced by a social philosophy. At any rate we will have to develop a better method of estimating pulmonary incapacity than that which resides in the x-ray film.

Summary

THERE is no meeting of the minds throughout the world on the interpretation of the x-ray shadows as found in those exposed to industrial dusts. It is too often forgotten that exposure to pure silica will produce roentgen changes differing from those produced by a mixture of silica with other dusts of high atomic weight such as iron or barium. The mineralogy of the earth mined in Wales differs from that in Pennsylvania or Alabama. These erupted mountains of silica known as the Rockies differ from the earth in South Africa. We also know that the processing of certain silicates alters their chemical nature. Equally important is the fact that opinion on x-ray interpretation tends to become biased when experience is limited to one type of industry. He whose experience is confined solely to miners in any given area is not apt to see the same roentgen changes as is the one dealing with foundry workers. Also one who reads only the films of workers exposed to silica is less apt to appreciate the variations from the normal which occur in those workers who spend a lifetime exposed to inert dusts. Finally, x-ray interpretation of the pulmonary dust diseases is best done by one who is fortunate to be able to combine equally his clinical experience with that of studying the x-ray films. Edgar Guest once wrote that "it takes a heap of loving to make a house a home." Likewise, it takes a heap of clinical experience to appreciate the significance of roentgen changes in the pulmonary dust diseases.

Ophthalmological Problems Among Railroad Employees

KENNETH L. ROPER, M.D., M.Sc.(Med.), Chicago

WHAT are the ophthalmological problems in railroad employees?

Foremost, of course, are the accident hazards —flying chips of metal, wood and cinders, splashing liquids, molten metal, acids and other injurious chemicals, and explosions of endless variety. Then there are the hazards of infection and of eye diseases. Finally, there is eyestrain from defective visual skill, from improper or inadequate lighting, or from glare.

First, the question of visual skill. Just how well an employee can perform his job may be based upon manual dexterity or some other physical or mental factor. But, in every case, the performance of an individual on his job is largely governed by the usefulness of his eyes, or—as the industrial psychologists put it—his visual skill.

Upon visual skill depend the amount and quality of production, accident record, capacity for accepting greater responsibility, and other equally important factors.

The railroad industry, while quite aware of all the facts, is not paying as much attention as industry in general to the importance of placing on every job the individual who is not only able to do the job well, but who in addition is temperamentally adapted to the job in question. Adequate measurement and classification of visual performance stand near the top of the list of methods available to railroad management for determining the efficiency of employees on the job, as well as the potential efficiency of applicants for jobs.

The common practice in the railroad industry is to test the new applicant's ability to read a line of type of a certain size, at a distance of 20 feet. He passes or fails, according to some arbitrary standard. This is not a satisfactory vision program for an industry as great as the railroad industry.

There are many other phases of vision that should be checked in order to obtain a full appraisal of an individual's visual capacities. The tests involve both near and distant vision, the vision of each eye separately—with and without glasses, binocular acuity, the muscle balance, color discrimination, and depth perception.

Binocular vision is important. It is the coordinated behavior of the two eyes by which we obtain a single picture of the world about us. In addition to this, its greatest achievement is the sensation of stereoscopic depth perception. We have two eyes and two retinal images, but normally we experience only a single perception of what we are looking at, because the two retinal images are "fused." The eyes must be directed and their movements coordinated in order that this fusion may be maintained.

The muscle balance, or "phoria," is the measurement of the relative position of the eyes in relation to each other. Crossed or divergent eyes are the extreme of this condition, but when the lack of balance between the muscular apparatuses of any two eyes is not severe enough to result in crossed eyes, the individual overcomes the difficulty by his own neuromuscular effort. The muscle imbalance of an individual may be of such a degree that he will experience discomfort, especially with the use of his eyes in close work and the effort required to maintain clear, single, two-eyed vision results in fatigue and mental confusion. It is important, therefore, that tests for these imbalances be carried out in all visual examinations.

Without adequate tests of visual ability and capacity, and without vision standards for different jobs, employment departments will continue to reject many desirable applicants and unwittingly take on others for jobs for which they are not qualified.

Twenty-five years ago vision testing in some industrial fields was almost non-existent. World War II and our present defense program have given vision testing in almost all branches of industry a spurt until it is being looked upon as a large scale operation. This is of equal importance to labor and to management. To the man on the job it means better job satisfaction, increased earning power, promotion, and advancement. To the employer it means reduced accidents, increased production, lower operating costs, less spoilage, and, in general, more efficient operators.

There are a number of vision screening devices available today but I will make no attempt to classify them. Considerable data have been collected since 1944 in this new approach to the problem of vision in industry. The results of many carefully controlled studies are now available for use in predicting successful operation of specific jobs. The reports are available in the literature.

Presented at the Sixty-Fifth Annual Meeting of the AMERICAN ASSOCIATION OF RAILWAY SURGEONS, April 7-9, 1953, Chicago, Illinois.

NORMAL color vision is important to railroad workers whose duties require the accurate interpretation of colored lights and signals. Anything which interferes with this function is a serious matter.

Tied in with this important question of color sense is the problem of glare, since railroad workers are constantly clamoring for permission to wear some form of tinted lenses to reduce glare. The matter of tinted lenses is of great importance in the railroad industry.

In the simple sense of the word, glare means "too much light." Discomfort in the eyes and depression of central or direct vision result when a bright light or reflection strikes the eyes. Well known examples of glare are the reflection of the sun on snow, on a body of water, on a concrete road, on shining steel rails, or on a white rock roadbed. The reflections from papers and glass-top desks are often most annoying.

There is marked reduction in visual efficiency when glare is present. The lasting after-images, caused by glare in reducing central visual acuity, are phenomena known to everyone. Firemen whose duty it is to call track signals at times cannot see the signals to call them properly after glazing at the intense illumination of the firebox for any length of time.

Glare Protection

NOW, from the railroad worker's standpoint:

1. *Who needs glare protection?*

Certainly not everyone needs to wear sunglasses. There is an extreme variability in individual tolerance of light, heat, and ultraviolet. If one has no eyestrain, doesn't squint, doesn't develop conjunctivitis, and isn't irritated emotionally, there appears to be no reason why sunglasses for glare protection should be worn. Certain individuals are more susceptible than others; for instance, blue-eyed blonds lack the protective ocular pigmentation found in dark-eyed brunettes; also myopic (near-sighted) individuals are more sensitive to light than are hyperopic (far-sighted) individuals.

2. *What kinds of glare protection are there?*

The oldest method known to man of protection from glare is the cupping of the hands around the eyes, shielding the eyes from light from above, below, and from the sides. Thus we realize that most glare appears to be *peripheral* glare. The lobsterman's cap, with greatly elongated visor, was worked out generations ago by the fishermen along the Atlantic coast. The baseball player's cap is a modification, as is the long visored cap frequently worn by the trainman. The American Indian on the plains drilled a hole in a stick through which he peered when searching the horizon for game. The Eskimo uses a slit goggle on sunny days. Ideal glare protection can be obtained by any device that will exclude all peripheral vision, but as such it would be decidedly dangerous if worn by railroad workers. Therefore, we must rely on a device which mitigates glare by reduction of the *intensity* of light rather than by eliminating peripheral light. Such a device is a sunglass.

3. *What should be the requirements of a sunglass to be worn by railroad employees?*

First, and most important of all, it should not alter color perception. Second, it should have a transmission range of between 15 to 20%. Third, the angle or amount of coverage must be large enough to include the entire field of view. Finally, under certain circumstances, attention might have to be paid to the absorption of infrared and ultraviolet—the invisible portions of the spectrum.

Let me discuss each of these factors. Insofar as color perception is concerned, no colored protective lenses available at the present time should be worn by railroad employees whose duties require the recognition of color signals. All of the extensive research work that has been done on this problem can be summed up by saying that the more neutral or "colorless" the glass the better the color rendition of objects seen through it. The glass need not be completely colorless, but strong yellows, blues and oranges should be avoided. A dull green causes the least distortion of colors but is still unsafe.

Do not believe any tale of sunglasses which "increase" color perception or penetrate fog. At the present time all commercially available sunglasses are color filters, and, insofar as color perception is concerned, colored protective lenses should not be used by railroad employees whose duties require the recognition of color signals.

As to the density of the ideal sunglass for the railroad worker, it may be stated that density permitting more than 30% transmission is without much real value. In other words, for real benefit, brightness should be reduced to at least 15 to 20%.

As to the angle of coverage, I have already pointed out how the light coming from the peripheral field of vision is more glare-producing than that which falls directly on the center of the retina. It is, therefore, obvious that ordinary-size eye glasses in front of the eye will permit peripheral glare which may be almost as bad as, or worse than, no glass at all. Drugstore and notion counter sunglasses are far too small to afford complete retinal protection. Lenses must be large enough to cover the entire field of vision. The "aviator's-type" lens meets this requirement quite satisfactorily.

As already stated, the two most important requirements of sunglasses to be worn by railroad employees are that they do not alter color perception and that they reduce the amount of light entering the eye to at least 30%. These two factors have to do with the *visible portion* of the spectrum.

In certain instances attention must be paid to the absorption of the infrared and ultraviolet rays which make up the *invisible portion* of the spectrum. Infrared rays are simply heat waves of the sort one gets from radiators, coal stoves, sunbaked sand, and pavement. They penetrate ordinary glass almost as fully as do the visible

light rays. Annoyance from excessive infrared heat waves is usually quite obvious. While the true cause of eye discomfort is not immediately recognized, the blame is likely to be laid to "too much light." The continued exposure can be injurious, especially to individuals not habituated to the outdoors. The benefit of a heat-absorbing glass to the ordinary person lies in the comfort of cool eyeballs. When protection against infrared heat rays is necessary one must rely upon the manufacturer's statements regarding his product.

Unlike infrared, very little ultraviolet light is transmitted by ordinary glass. In fact, some sunglasses have been found to transmit more ultraviolet than ordinary window glass.

The effects of ultraviolet may not occur until some hours after exposure. Again there is some dispute as to whether there is sufficient ultraviolet in sunlight at low altitudes to harm the eyes. As with visible glare, it is probably a matter of individual tolerance. But if we are buying a sunglass we might as well buy one which eliminates most of the ultraviolet.

With the preceding discussion as a background, it would appear that the ideal glare protection sunglass for railroad employees whose duties require the recognition of color signals would be one of neutral color with an essentially flat transmission curve of 15 to 20%, affording about equal visualization of all the colors in the spectrum. Such a glass has not as yet been available commercially, but I have recently been informed[1] that the neutral glass problem has jelled sufficiently to permit authorization of manufacture for sunglasses which will soon be on the market.

Visible light can be broken up into rays of light which disperse themselves according to their wave lengths easily appreciated by the normal eye as sensations differing in quality. This is called the spectrum in which four special areas are sharply defined: red, yellow, green, and blue. Railroad workers should not wear any device before their eyes that would tend to alter their perception of these four special areas of the visible spectrum. Between the red and yellow there is an intermediate orange, the other colors merge into one another, and the blue gradually merges through indigo into violet. Within the spectral colors themselves there are many more subtle changes of hue which are capable of discrimination.

In addition to the visible part of the spectrum we have also the invisible, either below the red, termed the infrared, or above the violet, termed the ultraviolet, which is invisible to the eye, the waves being either too long or too short for recognition.

Ordinary clear or "white" lenses made of crown glass transmit evenly throughout the visible spectrum (Fig. 1). The N-15 lens has a relatively uniform transmission of the visible spectrum. Blue lenses absorb substantially in the mid-region of the spectrum; Kalichrome C (a yellow lens) cuts off sharply; while the popular dark green Ray-Ban No. 3 transmits high in the mid-region of the spectrum and cuts off at both

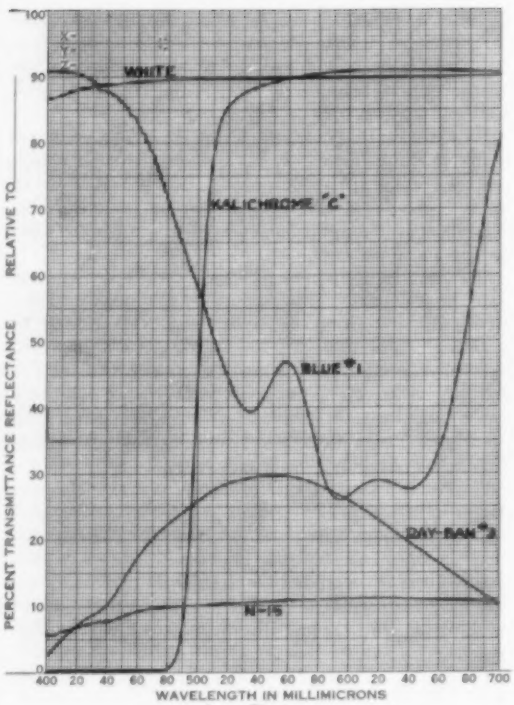

Fig. 1.

ends. As to the actual reduction of the glare or brightness that reaches the eye, I call your attention to the percent of transmission of light by these various lenses. Note that 10% of visible light fails to pass through our ordinary clear lenses. Those of you who wear glasses constantly are quite aware of this 10% increased brightness on removing your glasses when out-of-doors. The popular dark green sport lens excludes 70% of visible light, while only 30% enters the eye. The soon to be available neutral colored sunglass will transmit about 15 to 20% of visible light.

In discussing this problem a couple of years ago with some of our Chicago railroad doctors I expressed the opinion then that a lens that transmitted only 15% of visible light seemed too great a reduction of light for railroad workers, while probably most acceptable for air pilots and navy personnel at sea. By way of comment on this point let us take a look at what has happened over the past several years.

Colonel Victor A. Byrnes,[2] of the U.S.A.F. School of Aviation Medicine, Randolph Field, Texas, informs me that they do not want a sunglass which alters color perception. They feel that a 15% transmission lens is very satisfactory except, for example, on snow covered ground when it might be desirable to have even a lower transmission. According to Colonel Byrnes, investigations have further proved that under light levels present in ordinary sunlight the 15% transmission gives sufficient light to the eye to cause no reduction in the detectability of objects or in

visual acuity. Many of the military services now supply glasses with this low amount of transmission. In fact, the German submarine service had worked down to a 3% transmission glass by the end of the war.

When tinted lenses were first being popularized they were available in series of three shades, having approximately 70, 53, and 31% transmittance. Demand and use were almost entirely in the number two shade 53% transmitting lenses. There is no question that in the past five to 10 years the demand has shifted materially to the darker shade 31% transmitting lenses. I routinely prescribe the darker shade glass for my patients' sport glasses and approve the shift further to the lower transmittance neutral lens in the 15 to 20% range for the railroad worker who seeks protection against glare and who must be able to interpret color signals accurately.

If the time should come when railroad employees will be permitted to wear the new neutral, low transmission lenses, it should be distinctly understood that such glasses should not be worn when the illumination level is low—such as early morning, late afternoon, indoors, or under artificial light. They should be worn only after the sun has risen fairly high in the sky and should be removed sometime before it has set. Under no circumstances should sunglasses be worn for night driving. They constitute a definite hazard by eliminating those barely noticeable clues by which a driver holds to the road when facing oncoming headlights.

Accident Hazards

Now a few words about the accident hazards. The prevention in industry of injuries in general and of ocular injuries in particular has been a crusade of the times. There is no dearth of literature on both general and ocular protection. On the protection of eyes in industry, volumes have been written. Only the high spots can be mentioned. Of paramount importance is the fact that in spite of the ability of science to develop artificial hands, arms and legs, no one has produced an artificial eye that can see.

Without going into great detail I feel there is need to be impressed with the seriousness of eye injuries. Too little is known by the nurses and doctors working in industry about the care and treatment of eye injuries. Even minor eye injuries can be serious. Any eye injury not healed within 24 hours may become infected.

Superficially embedded foreign bodies constitute a major problem with railroad workers. I am sure that Medical Directors and Chief Surgeons frequently wonder why there should be so protracted a recovery period in connection with the superficially embedded foreign body. This is frequently caused by attempts of fellow workers and others to remove the foreign body, resulting in extensive abrasion of the cornea and contamination. Aside from this, it often results from the use of contaminated eye solutions and eye spuds.

As to eye solutions used in your offices, you should insist on obtaining sterilely prepared solutions with added preservatives, bottled in small containers. You must also guard against contamination of the eye dropper against the lashes or its touching any part of an infected eye.

The eye spud used to remove an embedded foreign body of the cornea should be as clean as the knife with which you would have your own belly incised. Sterilize your eye spuds before using them by immersing for a sufficient length of time in 70% alcohol or some other germicidal agent. Following the removal of a simple foreign body instill several drops of some antiseptic solution such as Schering's "Sodium Sulamyd" and prescribe its instillation for a couple of days. This has important prophylactic value in industrial and other eye injuries.

Now a few words about the eye that has sustained a penetrating injury and is thus liable to intraocular infection. In this antibiotic age one would expect the incidence of post-traumatic intraocular infection to be almost nil. Unfortunately, too many traumatized eyes are still being lost because of intraocular infection.

Leopold[3] has pointed out that systemically administered penicillin fails to readily penetrate the ocular fluids. The same can be said of streptomycin, terramycin, and aureomycin. It is true that in the presence of infection they penetrate the ocular fluids more readily, but whether they gain an effective therapeutic level is doubtful.

Chloromycetin and the sulfonamides, on the other hand, penetrate the ocular fluids decidedly better than penicillin, streptomycin, terramycin, and aureomycin. Chloromycetin is a more efficient antibacterial agent for most organisms than are the sulfonamides. It therefore seems advisable to use this agent prophylactically in eyes that have been injured. Time is important in these cases so the initial dose of 3 gm. should be given at once, and 1 gm. every six hours thereafter.

The severely injured eye requires expert attention if it is to be saved. Early institution of prophylactic chemotherapy is most important.

In the case of an intraocular foreign body, exact geometric localization studies of its position must be insisted upon and carefully supervised. In most instances little difficulty is encountered with the actual extraction of the magnetic intraocular foreign body, but too often, I am afraid, this is the single goal of some operators. The individual case must be carefully studied and the foreign body removed at the most accessible point. Further damage to intraocular structures, especially the lens if it has not been rendered cataractous, must be avoided. Holes in the sclera and retina must be properly sealed off if retinal separation and later loss of visual function are to be avoided.

With regard to the hazards of infection and eye diseases, the railroad worker is not exempt from any of the ills that beset all of us.

It is common knowledge that advancing age affects both distant and near vision. Significant changes are often found in the lens of the eye in the early fifties, so that vision is markedly affected by incipient cataract.

General systemic conditions such as diabetes, arteriosclerosis, and hypertension often damage vision because of hemorrhages, exudates, and degenerative changes. The field of vision may be affected by many systemic conditions, as well as intracranial pathology. A lesion within the eye itself might involve only the macular region whereby central or direct vision is lost. These are only a few of the examples of conditions which might affect the health of the eye, alter its field of vision, or annihilate central or direct vision itself.

Most important of all is glaucoma. One-eighth of all blindness is due to glaucoma. Undiagnosed and untreated glaucoma means potential blindness.

The term glaucoma does not designate a disease-entitity but embraces a group of pathologic conditions, which has as its outstanding clinical manifestation an increase in the intraocular pressure with its dire consequences. Although the word glaucoma appeared in the writings of Hippocrates, the conception of a disease associated with a raised intraocular pressure is of a much later date.

In the present state of our ignorance of this problem we classify it into two groups—secondary glaucoma, wherein the symptom of raised pressure is due to some obvious ocular lesion which is known, and primary glaucoma, wherein the cause up to the present time still remains unknown. It is this latter group of which I am speaking.

Every railway surgeon is in a most strategic position to help in the control of blindness due to glaucoma which occurs with as equal frequency in railway workers as with any other group of individuals. You may be applying a cast to an arm or leg of a patient because his field of vision had become so reduced in size that he didn't see the moving object to his side that knocked him down.

Too often patients reach the ophthalmologist after considerable visual field has been lost—which is too late.

Be suspicious of glaucoma when (1) the vision is blurred or "smoky"; (2) close work bothers despite frequent changes of glasses; (3) there are halos or rainbows around lights; (4) there is eye pain after movies, dim lights, emotion; (5) there is a family history of glaucoma.

Conclusions

1. ATTENTION has been called to a new approach to the problem of job analysis from a visual skill standpoint, and to the adoption of the newer visual testing techniques. Their primary purpose is to aid in the selection and placement of personnel in industry. Various industries which have adopted a system of visual screening for job placement report increase in production and efficiency and reduction of accidents when proper glasses are furnished or corrective procedures are instituted.

2. The ideal filter or sunglass for use in protection against glare for railroad employees should not alter color perception. Such a glass will have a fairly flat transmission curve so far as the visible spectrum is concerned and a density quite acceptable in high brightness levels. Attention has been called to the necessity of removing these glasses when light levels are decreased.

3. Prophylactic chemotherapy measures in the handling of eye injuries has been stressed.

4. The frequency of glaucoma among railroad workers has been pointed out. Every railway surgeon must be alert to the detection of early chronic glaucoma, since it is the cause of one-eighth of all blindness.

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Access to Good Health

IT WOULD be absurd to oppose the concept that access to good health is among the rights of the citizenry. But as a "right" we have the obligation (to ourselves and the American public) to see to it that medical service is placed in its proper position in the order of the necessities and the privileges of life. It is important that we separate the increasing interest of the layman in what he considers his problem of obtaining medical service from the political use or perversion of that interest. If we fail to do this, having now countered the attempt at the political capitalization of that interest, we shall not recognize our shortcoming in the next or present phase of the problem. The attitude of the intelligent layman of today reminds one of Clemenceau's remark during the negotiations after World War I, "War is too important to be left only to the generals." And is it necessary, before such a group as this, to labor through a repetition of the logic involved in the statement that this layman's interest has developed largely as an economic problem of availability of medical service from the standpoint of both access and costs?

—From "A Rededication," by JOHN P. BOWLES, M.D., in *New England J. Med.*, December 3, 1953.

Pre-Employment Examinations of 4,506 Federal Employees

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IN WASHINGTON, D.C., a large number of the pre-employment physical examinations are performed by the Examination Clinic of the U.S. Public Health Service Outpatient Clinic. Those examined by this Clinic represent only a small part of the persons employed by the Federal government; but since they are, in themselves, a sizeable group, it was felt that a survey of 4,506 pre-employment physical examinations, covering the period of June 1, 1951, through March 31, 1952, would be representative of the whole from an industrial viewpoint.

Pre-employment medical examinations are required by the Civil Service Commission on most Federal employees (there are exceptions, but these have no bearing on this subject, and consequently will not be discussed). The authority that establishes this requirement can be found in Executive Order No. 4071, dated September 4, 1924, and Public Law 410. It had its roots in history. The beginning of industry in the Colonies was in 1607 when a glass bottle factory was established in Jamestown, Virginia. The first legal action to regulate working hours in the United States was President Van Buren's Executive Order, in 1840, stipulating a 10-hour day in government Navy Yards. The first safety laws were established in 1852 in Massachusetts. The eight-hour day was enacted in 1886, and revised in 1892, and again in 1912. The first major industrial medical care prepayment program was instituted by the Southern Pacific Railroad in Sacramento, California. By 1879, articles such as "Hygiene and Occupation," and other similar industrial medical subjects were being published. In 1885, the first Employer's Liability law was enacted in Alabama. Other states followed this practice. In 1887, the forerunner of present-day industrial medicine was brought forth when the Homestake Mining Company of Lead, South Dakota, established a company-financed medical department with a full-time staff. In 1895, the first nurse was hired for industrial health practice. The first instruction in industrial hygiene was given in 1905. By 1915 Congress had enacted a law, covering all Federal civilian employees, granting the right of compensation for injuries sustained in the course of employment. From this date on, great advances were made in legislation, research, and treatment of industrial disease and hazards.[1]

Method of Examination

AS PREVIOUSLY mentioned, not all Federal employees are required to have pre-employment medical examination, nor does the U.S. Public Health Service Outpatient Clinic perform pre-employment medical examinations for all agencies, but only those agencies under the Executive Branch of the government. This comprises about 80 agencies in the Metropolitan Area of Washington.

All examinees are asked to fill out a history (Standard Form 89). This identifies the examinee and provides space for the family history. It also contains columns for checking "yes" or "no" covering the past history by systems. From this form a more complete history can be readily obtained by the examining physician.

The completed physical examination is recorded in duplicate on Standard Form 78. This is really two forms, one for recording the physical findings, remarks, and opinions, and the other for a "Physical Qualification Placement Record." This latter part affords the examiner the opportunity to recommend selective placement of handicapped individuals by modifying either the functional or environmental factors or both. In some instances, a referring agency has a Health Unit (staffed by full-time physicians and registered nurses). In these cases both the physical examination and physical qualification placement record are forwarded to the agency. The Health Unit retains the examination report and the Personnel section receives the Physical Qualification Placement Record. The placement record section affords the examiner the opportunity to express to the personnel officers or supervisor of the employee, in terms of function, rather than medical diagnosis, the physical qualifications of the examinee. At the same time it affords the agency a chance to specify to the examiner the environmental and functional requirements of a job.

In addition to the complete physical examination, certain routine laboratory work is performed. This includes a 70-mm. photofluorogram, serologic test for syphilis (VDRL and Standard Kahn), hematocrit, and complete urinalysis (voided specimen), and such additional laboratory procedures as are indicated by the history and physical examination. When questionable pulmonary or cardiac disease is found on the photofluorogram, a 14 x 17 x-ray of the chest is made and, when indicated, fluoroscopy is performed. In cases of a positive serodiagnostic test for syphilis, the serology is repeated as many times as necessary in order to establish the diagnosis; also further history is obtained from the

employee applicant concerning history and treatment. All examinees having positive urinary finding (albumin, white cells, etc.), have repeated urinalyses and intravenous pyelography, if indicated. In cases where the hematocrit reading is less than 38-mm., hemoglobin determinations and red blood cell counts are also performed. Further hematological studies are done as needed, to establish definitely the nature of the abnormality. An electrocardiogram is made when there exists a history of a coronary occlusion or angina pectoris, or the examination reveals an arrhythmia (except sinus arrhythmia). Electrocardiograms are also used to confirm diagnoses of hypertensive or arteriosclerotic cardiovascular disease.

The authority under which the Civil Service Commission acts in employing the handicapped consists of laws enacted in 1944 (the so-called "handicapped veterans preference") and in 1948. The 1948 law provides that "no person shall be discriminated against in personnel transactions if, in the opinion of the Civil Service Commission, he can efficiently perform the duties of the position involved without hazard to himself or to others." The standards used for these examinations are outlined in the Federal Personnel Manual, chapter M-1 (2), and are described in an article by Harvey.[3] These standards in general are:

Under no conditions may persons with active tuberculosis be employed. Ordinarily, persons with blood pressure elevations over 160/100 are acceptable for desk or sedentary positions, or those involving light-to-moderate exertion at ground or floor levels. A diabetic, under proper control, is employable in non-arduous positions, and if he can perform the duties of the position satisfactorily, but he may not operate a vehicle, or work around power-driven machinery, nor is he allowed to work on elevated areas. The same restrictions as for diabetics apply to epileptics. In examinees who have venereal disease, mental disease, organic heart disease, or severe crippling conditions, the opinion of a Federal Medical Officer must be secured as to the employability of each applicant. Each case is considered individually and the final decision depends on the relation of the physical ability of the examinee to the demands of the job. Here, again, selective placement is utilized to its fullest extent.

All of these examinations are conducted with the following objectives:

1. To facilitate placement and advancement of workers in accordance with individual physical and mental fitness.

2. To acquaint the employee with his physical status, and to advise him in improving and maintaining personal good health.

3. To safeguard the health and safety of others.[4]

Johnstone[5] states that nearly all disabled persons have more ability than disability, and that very few jobs require all of a man's ability. With this in mind, in order to match the handicapped person with a job in which his health and safety will be maintained and in which his efficiency will excel or equal that of an able-bodied person, four requirements must be met. According to Johnstone these are:

1. Physical ability—A man on crutches should not work on slippery surfaces or do heavy lifting.

2. Personal safety—A person subject to dizzy spells (hypertensive) should not work on ladders, platforms, etc., or around moving machinery.

3. Safety to others—Epileptics should not operate vehicles or cranes.

4. Personal health—The job should not aggravate existing conditions, such as the presence of skin irritants on a job when the employee has a skin disease.

The study of 4,506 Federal employee applicants here described involved critical review of these examination reports with the idea of determining the number of defects found in these individuals. In a number of cases there existed disorders that required medical treatment but would still not render the applicant unfit. In all such instances the persons were referred for medical care and, when requested by the examinee, a full report of the findings of the examination was sent to his physician.

Results of the Survey

Of the 4,506 examinees, 1,841 were males, representing 41% of the total, and 2,655 were females, or 59% of the total. As of December, 1951, in the Metropolitan area of Washington, of the 247,000 Federal employees, 55% are males, 45% female. The age range in this study was from 17 to over 70 (in special cases). Of the examinees 69.7% (3,141) were in the age group 17-35. In Table I the age distribution in 10-year groups is shown, where, as of September 30, 1947, the average age for Federal employees was 40.6 years (41.6 for males and 37.7 females).

In this group of 4,506 examinees, a total of 2,734 defects were found. These are listed by systems in Table II. One must be aware of the fact that this does not mean that 2,734 persons were found to have defects, as several were present, not infrequently, in one individual. An example of this would be obesity, diabetes mellitus, and deafness in a single person. Records were not kept on the number that had no demonstrable diseases or defects. The largest single group of defects found was "corrected visual defect," but as this was corrected by glasses, it was not included in the study. Corrected visual defects were found in 1,736 cases. These consisted of any visual defect of 20/30 or less corrected to 20/20 to 20/30 by lens.

TABLE I.
AGE DISTRIBUTION

Age Group	Number of Examinees
17-25	1,684
26-35	1,457
36-45	823
46-55	384
Over 55	158

TABLE II.

System	Number of Defects
Eye	346*
Ear, Nose, and Throat	124
Teeth	53
Thyroid	46
Pulmonary	100
Nervous (organic and functional)	117
Bones and Joints	230
Cardiovascular System	514
Serological Changes	91
Tumors	45
Metabolic	455
Dermatologic	125
Herniae	54
Drug Sensitivity	125
Gastro-Intestinal	53
Urinary	298
Female Disorders (GU)	65
Male Disorders (GU)	31
Others	2**
Total	2,734

*This does not include corrected visual defects.
**Hemophilia—1 case.
Kimmelsteil-Wilson—1 case.

The 53 cases of dental caries were found by the examining physician (not dentist) on examination of the mouth, and therefore probably represent only those with grossly apparent caries.

In the 46 recorded cases of thyroid disease, 39 were considered as benign hypertrophy, two had thyrotoxicosis, two had thyroglossal cysts, two had nodules present in the gland, and one had cystic thyroid disease.

A history of adequately treated syphilis was found in 45 applicants. This history of adequate treatment was confirmed by serological tests. In 40 other instances there was physical and/or laboratory evidence of active syphilis. These 40 were either referred to local clinics or their private physicians, and a certificate as to adequate therapy was required before the applicant was qualified for employment. Biological false positive results were found in six cases.

In 125 instances sensitivity to drugs, serums, or medicaments was elicited in the history. In the majority of instances this sensitivity was either to an antibiotic (sulfa drugs, penicillin and/or procaine, aureomycin etc.) or to horse serum (diphtheria toxin-antitoxin or tetanus antitoxin). There were two cases of morphine (or its derivatives) sensitivity, and one case each of sensitivity to cocaine, quinine, aspirin, and metals and soap.

All herniae found were in males. Diastasis recti on females was not recorded as herniae. Of the 54 hernia cases found, 29 were inguinal, seven were incisional or postoperative, and 18 were umbilical. One examinee had bilateral inguinal herniae. In one of the examinees who had an umbilical hernia, the hernia was so large and the fibrous ring surrounding the hernia was so tense, that qualification was delayed pending repair. For future reference all dilated external inguinal rings were recorded. This condition was found in 133 cases.

Regarding the gastro-intestinal tract, inactive peptic ulcer (from history) was present in 33 applicants, active peptic ulcer (G.I. Series) was found in three; and eight cases gave a history of having been operated upon for peptic ulcer. One examinee each was found to have diverticulosis of colon, fistula in ano, and iliostomy. One examinee was found to have acute infectious hepatitis. The diagnosis of cholecystitis was made in two instances. Cirrhosis (Laennec's) of the liver was discovered in three examinees.

The diagnosis of congenital heart disease was made on the basis of the history and physical findings plus x-ray and electrocardiographic changes.

The standard for normal blood pressure was considered to be 90-150 mm. of mercury for systolic pressure, and 50-90 mm. of mercury for diastolic. In some instances the systolic blood pressure was over 150 and the diastolic was over 90; in these cases both were recorded under their individual headings. Only when cardiac symptoms or signs were present (physical examination, laboratory, or electrocardiogram) was the disorder considered as hypertensive cardiovascular disease. In only two instances was congestive failure found. The four cases of labile blood pressure recorded could not be ruled out after repeated checks and initial excitement was ruled out.

All urinary tract disorders were grouped together; diseases of male and female reproductive organs were recorded separately. Cystocopic studies were not made. No single urinalysis report was used as diagnostic, and urinary tract abnormalities were not recorded until more than one uranlysis revealed the same abnormal findings.

It might be interesting to note that seven cases had had mastectomy. This was not recorded as a defect or disease. These were not classified as to one or both sides, simple or radical.

Comparison with other Studies

LUTZ,[6] reported the results of the examination of 718 executives. Of these, 590 showed pathology; 128 were normal. A total of 1,231 defects were found. Obesity was present in 127 executives (over 10%) as compared to 353 in the Federal employee applicants (7.8%). Collins *et al*[7] reported on samples of white families canvassed at monthly intervals in the eastern health district of Baltimore, 1938-43.

Kaplan *et al*[8] reported a health survey on 855 out of 1,050 employees in a garment factory in New England. Of those examined 684 had major abnormalities requiring medical attention, 239 had minor abnormalities, 171 had no disease.

A study of 1,815 physically handicapped emp'oyees was made by the California Institute of Technology[9] in 1946. In this study it was stated that there existed some 4,000,000 to 5,000,000 who were permanently physically handicapped, of whom approximately 70% are males.[10] Of this total some 2,000,000 to 3,000,000 are within employable age ranges. Table III shows the results of the studies by Lutz, Collins, Kaplan, and in California compared to the results of the Federal employee applicants.

Table IV is a comparison of government em-

TABLE III.
COMPARISONS (IN PERCENTAGE)

	FEA*	Lutz[6]	Baltimore[7]	Kaplan[8]	California[9]
Eye	8			1.3	6
Ear, Nose, Throat	2			1.3	6
Teeth	1		.76	30	
Thyroid	1		.23	2.6	
Pulmonary	2	9.83		1.3	7
Nervous System	2.5	8.53	1.2	1.1	
Bones and Joints	5	7.47	.14	20	24
Cardiovascular	11	23.88	.25	16	
Tumors	1.		.62	0.7	
Metabolic	10.			20	
Dermatologic	3	5.04		3	2
Herniae	1		.27	0.2	
Drug Sensitivity	3				
Gastro-Intestinal	1	16.6	.23	1	1
Urinary	6.6	6.58		3	
Reproductive System, Female	1				
Reproductive System, Male	0.7				

*Federal Employee Applicants

TABLE IV.
COMPARISON WITH VARIOUS SCREENING EXAMINATIONS

	Fed. Empl. Applicants	Virginia[11]	Georgia[12]	Ala.[13]	Mass.[14]
Anemia	0.7	13	5		1.1
Syphilis	2.1	0.8	9.8	2.1	
Positive Urinary Findings	6.6	1.5			
Abnormal Blood Pressure	6.3	14			6.6
Abnormal Blood Sugar	0.3*		3	2.9	1.7
Cardiacs (X-ray findings)	1.9	5	.9	0.1	6
Abnormal X-ray of Lungs	1.5	4	0.8	0.5	0.6

*Done only when indicated.

ployee applicants with screening studies done by Public Health Officers (State) in Richmond, Virginia,[11] Atlanta, Georgia,[12] three counties in Alabama,[13] and Boston.[14] From this table one can compare the government employees (who may come from any part of the country) with people from certain sections in regard to anemia, syphilis, heart disease, hypertension, pulmonary disease, and diabetes. For the most part the results compare favorably with the three Southern states and Massachusetts.

In a nutritional survey in Ottawa County, Michigan,[15] in a group of 2,551 persons, 550 were studied for diabetes mellitus. In this group, 16 new cases were found (0.3%). This figure compares statistically with the figure in the multiphasic screenings and also with the percentage found in government employee applicants.

Summary

A CRITICAL survey of the pre-employment examinations of 4,506 Federal employee applicants made over a 10-month period (June 1, 1951, through March 31, 1952) is presented. Among these 4,506 examinees, a total of 2,734 medical defects were recorded. Only eight (0.17%), of the entire group of 4,506, were medically unemployable. Two of these had active pulmonary tuberculosis; one had active urinary tract tuberculosis; five had psychoses.

[The author wishes to express his thanks to Mrs. Louise Blaine whose invaluable help made this article possible.]

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Medicine for a Sick World

WE EXPORT billions of dollars in merchandise and machinery. Why can't we export health? We have the know-how. We are the healthiest nation in the world. Our techniques in the fields of public health and industrial medicine are unequaled by any nation in the world. It is only logical that American physicians should take a leading role in the vital work being done by international bodies like the World Medical Association.

—From "Medicine—The Big Gun in Democracy's Arsenal," by DR. LOUIS H. BAUER, Secretary-General WMA, and former President AMA, in *Family Weekly Magazine*, October 4, 1953.

Coronary Artery Disease in Industry

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DURING the past decade there have been numerous articles in the medical literature on the industrial aspect of coronary artery disease. On the whole these have attempted to explain and clarify the relationship between exertion of varying degrees and cardiac infarction. Master has probably written more comprehensively about this problem than anyone else, and by and large he has rather clearly shown that statistically at least, cardiac infarction occurs with equal frequency in laborers, white collar workers, and professional persons. He has also shown from case reports of a rather large group of patients who have recently suffered an acute infarction, that over 50% of such attacks had their clinical onset during sleep, that slightly over 46% occurred during mild to moderate activity, and that only 2% followed arduous or unusual strain. These statistics have more or less been confirmed by other investigators, although in some series as high as 5% of acute infarctions have followed strenuous activity. Other writers have drawn similar conclusions. Crawford, in 1942, stated, in the "Modern Concepts of Cardiovascular Disease," that "there is little doubt that trauma is not a common cause of the onset of coronary occlusion."

How then can these statistics be correlated with the known or postulated pathologic processes which precede or coincide with the development of localized myocardial ischemia and necrosis? Penetrating wounds of the thoracic cage which involve directly or indirectly the cardiac pedicle, shock following severe burns or crushing injuries, and severe precordial trauma are rare but obvious mechanisms for cardiac infarction. Ruptured atheromatous plaques, coronary emboli and subintimal hemorrhages are infrequent causes of infarction. Protracted episodes of coronary insufficiency and coronary artery thrombosis are more commonly encountered pathogenetic factors. The evidence for this conclusion is statistical and is concurred in by most pathologists and clinicians. From a practical standpoint coronary artery thrombosis and protracted coronary insufficiency are, therefore, the major causes in the evaluation of the relationship between infarction and stress and strain.

Protracted coronary insufficiency with resulting infarction induced by unusual physical or emotional stress is easily reconciled with our present concept of the probable pathogenesis of such cardiac infarction. The biochemical and biophysical changes in the myocardium which result from such prolonged hypoxic states are most excellently stated by Raab, Master, Blumgart and others and will not be repeated here. It is sufficient to state that there is wide acceptance by physicians in the field of cardiology and industrial medicine of the possibilities of this causal relationship. There is no disease entity in medicine that demands a more carefully detailed history. However, where compensation is an issue it is not easy for a physician to get an accurate record of past events, but in order to do so every attempt should be made to convince the patient as to the examiner's impartiality. In suspected cases the history should reveal that the patient participated in physical activity or exertion greater than that which he was ordinarily accustomed to, and that such exertion was of enough severity or continued over a period of time sufficiently long for actual necrosis to occur. The history should reveal that the subjective distress resulting from such physical strain persisted for 30 minutes or longer after cessation of the provoking factor. Then causal relationship between exertion and infarction can be established. If the pain or distress persisted for less than 30 minutes it is unlikely that permanent myocardial damage ensued from that particular episode. If the symptoms were of short duration and disappeared quickly after resting or omission of effort, only to be repeated during the course of the day's work and then followed later by the prolonged and severe pain of typical infarction, one must assume that the temporary and intermittent seizures were indicative of an impending infarction which would have occurred regardless of the patient's endeavor, and causal relationship would therefore seem unlikely.

However, a large number of cases in which symptoms develop while the patient is performing his usual work offer the greatest diagnostic challenge. In most of these instances the patient's occupation requires some expenditure of physical effort, but this is usually short of what is to be considered arduous. On occasion the patient will be required to exert himself in a strenuous manner for short periods of time. When the symptoms of an acute infarction occur during such routine duties, which have not been severe and prolonged, it has been generally accepted that the cause of the infarction has been due to a thrombus in the coronary artery. Pathologists agree that it requires hours and possibly days for a thrombus to occlude a vessel to a degree wherein the reliant myocardium becomes sufficiently hypoxic to cause necrosis. Therefore, it would seem unlikely that the occlusion of a coronary artery by such a thrombus could be attributed to effort, even in

Presented at the 1953 Industrial Health Conference, Los Angeles, April 18-25, 1953.

those instances in which the first signs and symptoms developed at once or shortly after performance of usual or even moderate exertion. It might be argued that, as a slowly developing thrombus reached proportions sufficient to interfere with coronary flow, myocardial ischemia and infarction could well ensue or be enhanced strictly upon the basis of coronary insufficiency. The first signs or symptoms might then be induced by slight physical effort. If such a hypothesis is accepted it must follow that that particular segment of the coronary circulation was in such a precarious state that the resulting infarction would eventually have occurred in a short time regardless of activity. It would seem that the emphasis should then be placed upon the basis of underlying coronary artery disease rather than strain, and the patient should not be led to believe that he would have escaped his attack had he been more sedentary in his activity.

If the above opinions are acceptable then the question can be logically raised as to why there has been an increase in the number of cases involving effort and cardiac infarction presented to Compensation Boards or Accident Commissions for adjudication. That such an increase exists cannot be denied, and can be explained in part by the greater number of cases of cardiac infarction occurring in the general population. However, other factors also contribute to this increase. Strong, in an excellent article published in 1950, cited several cases which had been adjudged occupationally induced on evidence which 10 or more years ago would have been considered a non-industrial illness. This reflects a recent trend by those industrially employed to consider many more illnesses as potential occupational hazards. The leniency of many Compensation Boards or Commissions has encouraged the filing of numerous claims of dubious validity. This is evidenced by data obtained in a personal communication with the Division of Labor Statistics and Research of the State of California. While the total number of lost-time work injuries rose only from 142,000 in 1948 to 146,000 in 1952, or an increase of 2.7%, the total number of cases submitted to the Industrial Accident Commission for arbitration rose from 11,000 to 15,000 during the same period of time, or a 36% increase. The number of cases involving heart disease only had a much more striking rise. In 1948, there were 156 such decisions rendered by the Industrial Accident Commission as against 238 cases in 1952, or an increase of 52%. In other words, the number of cases involving heart disease brought to the Industrial Accident Commission for decision was nearly double the statistically predictable increase. The percentage of these adjudged compensable was not made available. The medical literature would indicate that such a trend is fairly universal in the United States and Canada.

THE growing number of cases which are being presented daily for adjudication poses a problem to the medical profession as well as to the population at large. We of the medical profession are unwittingly contributing to this problem and are thereby adding to the financial burden of every man, woman, and child. Unless some means can be found whereby each case can be decided honestly and consistently without bias, and upon its merits, we appear to be headed for medicolegal chaos in this particular field of jurisprudence. The following reasons are offered for this dilemma, and recommendations suggested for a more uniform and equitable solution:

1. It is usually difficult to get physicians to agree in detail upon any one subject, and this is especially so when litigation is involved. It is time for the medical profession to set its house in order, so to speak, and establish criteria for use in the adjudication of cases of myocardial infarction allegedly arising out of and/or caused by employment. Such criteria could well be set forth by a committee appointed or designated by the American Medical Association working in conjunction with the American Heart Association, the Industrial Medical Association, and other groups interested in this phase of medical practice. These criteria should be based upon our present and accepted knowledge of the pathogenesis of coronary artery disease and the wide experience of the many capable physicians and laymen interested in this particular problem. All physicians should then subscribe in principle to these criteria. This would not eliminate honest differences of opinion. It would, however, provide authoritative concepts and principles for application to this problem.

2. Most state workmen's compensation acts or laws were written and enacted at a time when coronary artery disease was not considered a major occupational hazard. Since the enactment of most of these laws some modification has been attempted to cover this condition. For instance, in California a bill was passed not so many years ago which stated in effect that if any employee of the State of California or its sub-divisions developed heart disease while so employed, such disease was presumed to be due to his occupation unless proved otherwise. This in practice concludes that the employer is guilty of causing the employee's heart disease unless proved innocent. This premise is somewhat contrary to the basic concept of jurisprudence which, in the case of a crime, assumes that a man is innocent, even if he be an employer, until proved guilty. With such a law upon the statute books the next logical step could well be that every employee who developed heart disease while industrially employed would be considered compensable unless otherwise proved. Our present and profound lack of knowledge concerning the exact pathogenesis of the underlying cause of coronary artery disease would make such proof extremely difficult if not impossible. The solution to this vexing problem would seem to be in a more or less uniform workman's compensation act covering this particular aspect of industrial medicine, and should state specifically that the act was not intended as

health insurance to compensate for disability arising from sickness or disease unless it be shown without reasonable doubt that such conditions were seriously aggravated, complicated or induced by conditions of employment. Unless some such legislative action is taken, socialized medicine could well become a reality through more lenient interpretation of our present ill-defined laws.

3. The enactment of adequate compensation laws to cover coronary artery disease and allied conditions is in itself not enough. The administration of such laws also needs some clarification and attention. I am not too familiar with the procedures of other localities or states, but I have had a reasonable experience within the State of California. At the present time, any employee who suffers a heart attack may file a claim with the Industrial Accident Commission for compensation, alleging that his disability from his heart disease arose out of and/or was caused by his employment. This claim is heard in a quasi-judicial manner by a referee appointed by the State Industrial Accident Commission. Testimony from both contestants is admissible, and the case is then submitted to the referee for a decision. If there is conflict in the testimony, which frequently occurs, the referee may then decide the case upon its merits or he may ask to have an independent medical examiner review the testimony and submit an opinion. The referee is not bound by such an opinion. This independent medical examiner is usually, but not necessarily, qualified in the field of cardiology; and he is ordinarily chosen from a panel selected by the State Compensation Commission. One might reasonably ask why should the referee be empowered to decide and evaluate medical testimony when there is no appeal from his decision except to the Industrial Accident Commission itself or to the Supreme Court of the State of California and then only for interpretation of strictly legal aspects of the case. All too often the physician who testifies in the more persuasive manner is given greater credence regardless of his experience or basic knowledge of the disease. This is true whether he practices the chiropractic, osteopathic, or allopathic art of healing. It would seem much more logical to have available a panel of physicians qualified and experienced in this particular field who could be called upon for an opinion based upon a transcript of testimony in cases of conflict, much in the manner the Supreme Court now acts upon cases of appeal. This panel or court of physicians could be jointly appointed by the Industrial Accident Commission, organized labor, and the medical profession as represented by the State Medical Association. Their opinion need not be accepted as final, but it would afford the referee and the Compensation or Accident Commissions the basis for an unbiased and sound decision.

4. Since about 1932, there has been a growing acceptance of a philosophy by many segments of our civilization to the effect that work in general is harmful. Even we as physicians are prone to attribute many of our daily aches and pains to overwork and stress and strain. While this may be true in a limited sense, the continuation of such a philosophy can and will lead to our downfall as a civilization. The growth and acceptance of this philosophy have unquestionably caused more people to assume that the cause, development and aggravation of some diseases was brought on solely because they had to work for a living. They seem to labor under the delusion that, were they financially endowed from the cradle, there would be no grave. This, of course, is not true. We know that abrupt and sometimes unnecessary retirement causes an early and untimely demise, and the medical profession as a whole is attempting to keep more and more people gainfully employed over a greater span of life. I have no solution or suggestion as to how to combat this insidiously spreading philosophy, but we as physicians should be on guard lest we encourage it by inadvertently insinuating or suggesting that work *per se* is to be condemned. We should look upon our daily chores and our occupation, whether we are self employed or work for others, as a God-given chance to produce and to justify our existence. To do otherwise is contrary to the basic law of nature that prolonged disuse of any organ or structure of the body results in disease.

ANOTHER important phase of coronary artery disease in industry is the re-employment of survivors of acute myocardial infarction. Not only has much been written on this subject but a definite plan for evaluating the individual cardiac's work capacity has been evolved by the "Cardiac and Industry Committee" of the American Heart Association. This plan embodies the use of a team composed of a cardiologist, psychiatrist, social worker, vocational counselor, and clerks and technicians. Such a team has been termed a Work Classification Unit. Its function is to examine any patient voluntarily referred to it and, after a thorough history, physical examination, and laboratory work-up, recommend the amount, and, if possible, the type of work that that individual is mentally and physically capable of performing without hazard to himself or industry.

Based upon statistics obtained by those Work Classification Units now functioning, approximately 80% of patients examined retain sufficient cardiac function and reserve to permit some form of gainful employment. In theory this plan offers an excellent solution. However, the practical application depends on complete cooperation and sympathetic approval of all parties involved, including the employer, the employee, and the labor union to which he may belong. Such a cooperative attitude by Accident Commissions or Compensation Boards is also imperative in those cases adjudged compensable.

Let us consider the situation of the employer. We as a nation are in the process of a social and economic reformation. Industry, and especially so-called "big business," has been stigmatized as being heartless and lacking in compassion. I have not found this to be generally true. One must

realize that the basic purpose of business is profitably to manage an economic enterprise in a highly competitive field and not operate an "institution." Therefore, every employer when requested to employ or re-employ a person with known cardiac disease must assure himself that (1) the individual in question will be able to produce at a profit, (2) will not endanger the life or health of fellow employees, and (3) will be able to perform designated and required duties without aggravation of his pre-existing disease, while at the same time his employment will not jeopardize the senority rights or welfare benefits of other employees as might be stipulated in a union-management work agreement. The only justifiable deviation from such a policy would be in the case of an employee with many years of service. In this instance, industry should be particularly sympathetic and if necessary create a place in the organization tailored to the individual's needs and thereby permit him to resume his rightful place in society without suffering the humiliation of accepting a small pension or charity. However, the employer's problem goes beyond these factors. He also should have some assurance that as an employer he will not be unduly penalized by recurring complications developing in the physically handicapped employee. Some such protection is offered in a few states by so-called "Second Injury Laws." In general such legislation protects the employer against significant increase in workmen's compensation premium rates. In brief, then, industry should be assured that the employment of a person with known cardiac disease will be mutually beneficial to both parties without undue risk to either.

The employee's part is equally important. The average lay person has at most a very rudimentary knowledge of coronary artery disease and its complications. The term "heart disease" has had a most ominous significance, and any person so afflicted quite naturally develops a profound fear of recurrence and/or sudden death. When such a fear is coupled with a belief, which at times is unjustly fostered, that his work played a vital role in the causation of his disease, it makes him most reluctant to undertake any gainful endeavor regardless of the physical or mental stress involved. This is where we as physicians are sorely at fault. From the very onset of the patient's symptoms we preach caution, almost to the point of absurdity—as is occasionally evidenced by the unduly prolonged bedrest prescribed during the acute stage of the infarction. Such an attitude naturally engenders a fearful outlook on the part of the patient. Instead, we should constantly exude confidence, and frequently reiterate that in all probability the illness will be temporary and that the patient should look forward to returning to work. If a patient's previous employment has been arduous and his infarction extensive he should be encouraged as early as possible to consider other types of more sedentary employment. When necessary, the physician should exert every effort to work out a rehabilitation program directly with the employer or indirectly through established State Rehabilitation Boards. When feasible the patient's disease and symptoms should be explained to him in such simple terms that he has an adequate understanding of his own problems and limitations. In brief, then, we as physicians are directly responsible to society at large for the rehabilitation of the cardiac patient, and such rehabilitation can be made easier by the abatement of fear early in the disease and a cheerful insistence upon the return to some type of employment when at all possible.

The patient, as well as the employer, will frequently raise the question as to when work should be resumed. No specific criteria can be set forth which will cover all cases. However, in general, the individual should be returned to work as soon as his tolerance to mild activity is safely restored even if at first this means performing only a few hours' work daily. Where the original work demands were of an arduous or semi-arduous nature every effort should be made by the physician to have the employer or industry furnish the patient some sedentary work even though it be on a temporary basis. Undue and prolonged idleness destroys the initiative of the individual, promotes an anxiety state, and probably adds to his already heavy financial burden. If upon a trial return to work the patient develops symptoms of a still limited cardiac reserve he should again be idled and re-evaluated at a future date. I do not believe that such an unsuccessful attempt is physically harmful, although occasionally it may result in unwarranted discouragement.

I am a little reluctant to discuss the role organized labor should play in the problem of coronary artery disease and industry. It is only natural and right that an organization representing the industrially employed should be interested in any disease or complication thereof which arises out of or is caused by occupation. However, it would seem in all too many instances that the interest of organized labor lies mainly in obtaining compensation for its members. While such an attitude is admirable, the more enlightened leaders of labor should realize that the continued insistence upon penalizing industry for cases of questionable aggravation of a pre-existing disease will eventually lead to more strictly enforced regulations of non-employment for men over 40 years of age regardless of their skilled qualifications. It behooves organized labor to take a more constructive attitude toward the problem and actively enter into the rehabilitation of cardiac patients by the waiving of senority rules and rates of pay differentials when necessary. The maintenance of a full employment program strongly advocated and supported by organized labor can be achieved only by the recognition and understanding of industry's need for profit, and any policy which indirectly increases the financial load of the employer defeats the purposes and aims of all parties involved.

Summary

CORONARY artery disease has become increasingly important in our medical, economic, and

industrial life. The increasing incidence of this disease accounts in part for the greater number of cases being presented for compensation awards and claims, but other factors such as inadequate and antiquated workmen's compensation acts, the unnecessary leniency of politically appointed compensation boards, as well as the lack of knowledge of the pathogenesis of this disease by many physicians, account for the major increase. The failure on the part of organized medicine and its various specialty branches to meet the problem in a realistic manner has inordinately complicated the picture. Suggestions have been offered as to how some of these problems can be met and resolved.

The problem of employment and re-employment of individuals suffering from coronary artery disease is also discussed. The part of industry as well as that of the employee and his labor union is mentioned, and an attempt is made to evaluate the role each should play in the rehabilitation program. Emphasis has been placed upon the need for justice and compassion by all, and the elimination of greedy motives by the few. It is only in the light of honesty and justice toward all that this problem can ever be equitably resolved. Work *per se* should not be condemned but encouraged in every physically able individual as a justification for existence in our complex civilization as well as for the maintenance of physical and mental health.

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The Safety Record

THE PHYSICIAN who has a clear concept of the nature of his ethical responsibilities to the employees, and communicates this information to management at the appropriate time, should have no difficulty in dealing with industrial personnel on medical matters. Constant education of supervisory personnel is necessary, because it is at this level that one often encounters a fierce, fanatical, and sometimes rather blind loyalty to what erroneously may be considered the best interests of the company, even to the detriment of the employee. A patient but inflexible attitude of fairness by the physician is required in pointing out that the true interests of the employer can only be served by careful consideration of what is best for the employee. An example may illustrate this point. The management of a plant may be so proud of a good safety record that it becomes a thing to be zealously guarded. This is true of the safety department to an even greater degree. According to the rules of scorekeeping in such matters, only injuries resulting in actual disability affect the safety record. One of the chief determinants of disability is loss of time from work. When an injury occurs, for example, a low back strain, the safety department may temporarily lose sight of the best medical interests of the injured employee. There is frantic effort to protect its recognized standard of efficiency, the safety record. In some plants it may be suggested that a newly injured man, on crutches or in a heavy cast, be delivered to the clockhouse for the purpose of simply punching his time card, establishing for the sake of the record his ability to work and thus avoiding that symbol of safety failure, a lost-time accident. This is not according to Hoyle, but I have heard that it has been done. The duty of the physician in these cases is quite clear. While early return to work has become an accepted principle of rehabilitation of the injured, decisions based on considerations other than the welfare of the patient cannot be countenanced.

—From "Industrial Medical Service by Private Practitioners," by James P. Hughes, M.D., Kettering Laboratory, University of Cincinnati College of Medicine, in *J.A.M.A.*, December 19, 1953.

VISUAL ACUITY
—Results of a Survey of 10,000 Persons

REX H. WILSON, M.D., F.A.C.P., and WILLIAM E. McCORMICK, M.S.
B. F. Goodrich Company, Akron, Ohio

ABOUT two years ago B. F. Goodrich Company decided to determine the nature and extent of the visual problems existing among its employees in one of its plants. Every employee was offered the opportunity of having a visual test made on a confidential basis; 10,372 took the test; 2784 refused. The reasons for refusal were varied: fear of finding out that they had defective vision, mistrust in the company's motives in spite of being told the test was confidential, fear of having someone find out that they already had deficient vision, and the excuse of just having had a visual examination.

Management's interest in the survey fell primarily in the following categories:

1. Relationship of accident proneness and visual acuity.
2. Preventing of accidents not only to the eye but also to the body as a whole.
3. Relationship of visual acuity to quality and quantity of work done.
4. A genuine desire to make the employee aware of any visual defects he might have, in the hope of helping him.
5. A desire to add to the basic knowledge of human vision by presenting an analysis of the vision of the employees of a large industry.

Methods Used

TWO "Sight Screeners," portable visual testing units, were mounted on carts (Fig. 1). The testing was done both on the job and in the Medical Department. All new applicants were tested. All workers were tested on a voluntary, confidential basis. Nurses were trained to conduct the test. The results were evaluated by a physician. The form for testing is shown in Fig. 2. The results were transposed onto I.B.M. cards for future study.

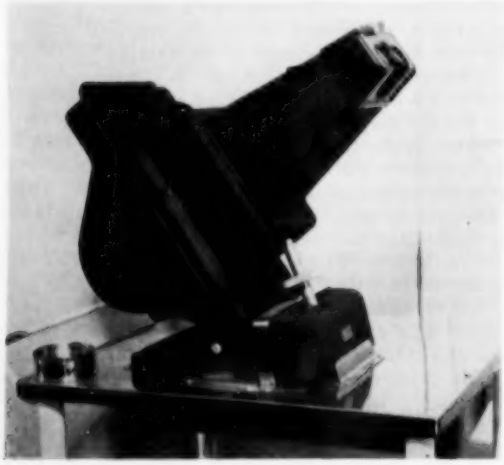


Fig. 1.

The "Sight Screener" is a portable visual testing instrument designed for mass visual screening. It indicates types of visual deficiencies, but is not diagnostic. It will perform the following tests:

1. Simultaneous binocular vision, near and far point.
2. Visual acuity, right eye, near and far point.
3. Visual acuity, left eye, near and far point.
4. Visual acuity, both eyes simultaneously, near and far point.
5. Depth perception or stereopsis, near and far point.
6. Vertical muscular imbalance, near and far point.
7. Horizontal muscular imbalance, near and far point.

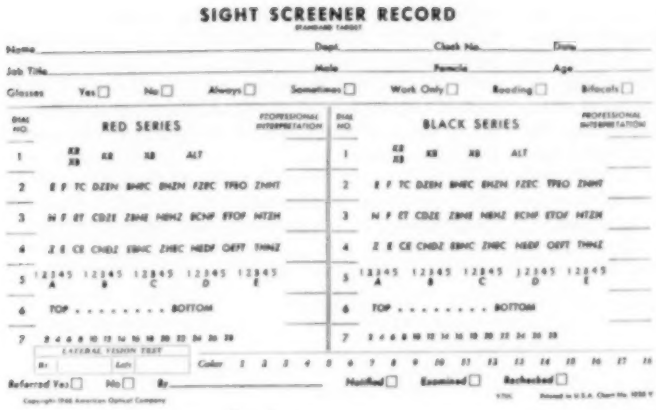
The various tests are carried on enclosed targets, which are brought into view for the subject by the operator. No color perception targets are on the instrument, but, rather, a series of 10 separate color plates is provided. The subject's responses to the various tests were recorded on the form (Fig. 2) by the operator. If glasses were worn by the subject, he was tested both with and without his glasses. No opinion was given to the subject by the operator as to the results of his test.

The visual quality of employees was placed in three separate classifications:

1. *Satisfactory vision* consisted of at least 20/40 each eye corrected, with no other optic defects.
2. *Deficient vision* consisted of at least 20/40 each eye corrected, with one or more uncorrectible deficiencies, such as depth perception, color perception deficiency, and alternating vision.
3. *Unsatisfactory vision* consisted of less than 20/40 vision each eye corrected. Uncorrectible deficiencies may also have been present but could not be properly analyzed in this classification.

The results of the test were recorded on a card (Fig. 3) and mailed to the employee. No individual results were disclosed to anyone, although any employee was privileged to discuss his own examination with the Medical Staff.

The accident data were obtained by a thorough



SIGHT SCREENER RECORD

STANDARD TARGET

Name _____ Dept. _____ Check No. _____ Date _____

Job Title _____ Male _____ Female _____ Age _____

Glasses Yes ☐ No ☐ Always ☐ Sometimes ☐ Work Only ☐ Reading ☐ Bifocals ☐

DIAL NO.	RED SERIES	PROFESSIONAL INTERPRETATION	DIAL NO.	BLACK SERIES	PROFESSIONAL INTERPRETATION
1	XB XB XB XB ALT		1	XB XB XB XB ALT	
2	E F TC DZEN BHBC BHZN FZEC TFBO ZNHT		2	E F TC DZEN BHBC BHZN FZEC TFBO ZNHT	
3	N F ET CDZE ZBHE NBHZ BCNF ETOF HTZN		3	N F ET CDZE ZBHE NBHZ BCNF ETOF HTZN	
4	Z E CE CNDZ EBNC ZNBC NEDF OEFT TNHZ		4	Z E CE CNDZ EBNC ZNBC NEDF OEFT TNHZ	
5	12345 A; 12345 B; 12345 C; 12345 D; 12345 E		5	12345 A; 12345 B; 12345 C; 12345 D; 12345 E	
6	TOP . . . . . BOTTOM		6	TOP . . . . . BOTTOM	
7	2 4 6 8 10 12 14 16 18 20 22 24 26 28		7	2 4 6 8 10 12 14 16 18 20 22 24 26 28	

LATERAL VISION TEST

Rt. _____ Left _____

Color 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

Referred Yes ☐ No ☐ By _____ Notified ☐ Examined ☐ Rechecked ☐

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Fig. 2.

study of the medical file of each employee examined. All occupational injuries occurring during a two-year period immediately prior to the date of his visual test were recorded, without regard to severity, on the I.B.M. card.

Before analyzing the results of the examinations it is well to discuss the accuracy of the instrument employed for the analysis. The relative efficiency of various procedures for the evaluation of visual acuity has not been studied extensively. Dr. Marian M. Crane and associates,[1] in a visual study made on elementary school children, states that, using the standard of 20/30 (Snellen) or better as acceptable, all students not passing were referred to an ophthalmologist. Correct and incorrect referrals were then used as criteria of evaluation of methods of procedure. It was concluded by Dr. Crane that none of the visual testing methods provided more than a rough screening procedure as compared with studies by an ophthalmologist.

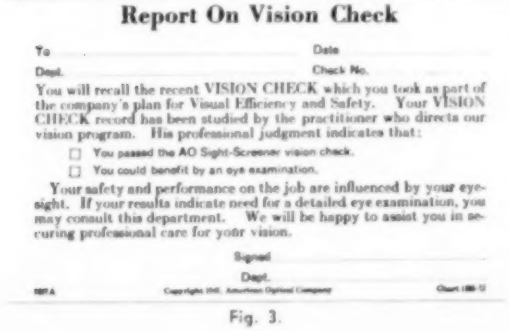
In our tests, using a standard of 20/40 as the point of satisfactory vision instead of the more common 20/20 standard and having the tests performed by well trained personnel, we felt that the procedure was fairly accurate; and less unnecessary referrals to an "eye specialist" occurred. Certainly comprehensive screening by a trained ophthalmologist or an optician with sensitive visual measuring instruments would be more accurate, but not nearly as practical, since "on the job evaluation" could not be performed.

Following the completion of the survey, an attempt to ascertain the effectiveness of the response to recommended eye correction was made. A survey card in the form of a double postcard (Fig. 4) was mailed to the home of each employee and he was asked to check the appropriate answers. The cards were returned unsigned. Twenty-five percent of those given visual examinations returned the cards. Of the cards returned, 93.3% were in favor of the visual test, and of those for whom additional eye care had been recommended 77% stated that they had obtained it.

Every effort was made to secure the maximum amount of information from the collected data. Obviously, there are many ways which will suggest themselves for analyzing the data, but basically, we believe, it should be done on the basis of the three general visual classifications as set forth in the introduction, with respect to age, sex, and employment status. Accordingly, our data are presented by six decade age classifications as follows: "Under" 21, 21 to 30, 31 to 40, 41 to 50, 51 to 60, and "over" 60; and two general employment classifications: "factory," and "salary." No employees under 18 years of age or over 65 were examined. The employment classification of "factory" and "salary" is a rather general one, indicating that the individual was employed either as a clock card or a salary employee.

Results and Comment

1. AGE DISTRIBUTION OF EMPLOYEES: Age distribution of the employees we examined is shown in Table I. In the last column of this table are shown also the median ages of the various visual classifications. It will be observed that a considerable difference in the median ages exists between these classifications, with a noticeable in-



Report On Vision Check

To _____ Date _____

Dept. _____ Check No. _____

You will recall the recent VISION CHECK which you took as part of the company's plan for Visual Efficiency and Safety. Your VISION CHECK record has been studied by the practitioner who directs our vision program. His professional judgment indicates that:

☐ You passed the AO Sight-Screener vision check.

☐ You could benefit by an eye examination.

Your safety and performance on the job are influenced by your eyesight. If your results indicate need for a detailed eye examination, you may consult this department. We will be happy to assist you in securing professional care for your vision.

Signed _____

Dept. _____

1007-A Copyright 1948, American Optical Company Chart 1006-52

Fig. 3.

February 28, 1953

TO BFG MEN & WOMEN — AKRON PLANTS.

During 1951-52 the Company provided a voluntary eye examination program for Akron employees.

Over 10,000 individuals have had their vision tested under this program.

Each received a confidential report telling whether glasses were or were not needed. Any action taken was left completely to the individual concerned.

Your help is needed in determining the value of this program. Please answer the questions on the attached card, detach the card and mail it UNSIGNED to the Company.

Your assistance will be sincerely appreciated.

THE B. F. GOODRICH COMPANY

Please answer by placing an (X) in the proper square.

Do not sign the card. Detach and mail promptly.

1. I believe that the Visual Testing Program was worthwhile. . ☐ Yes ☐ No

2. I had my eyes tested in the 1951-52 Visual Testing Program. . ☐ Yes ☐ No

(If the answer to question 2 is YES, please answer questions 3 and 4)

3. The test showed that I needed glasses, or that my glasses needed to be changed ☐ Yes ☐ No

4. I obtained glasses, or had my glasses changed as a result of my participation in the program ☐ Yes ☐ No

Fig. 4.

crease in median age as the visual quality declines. The reason for this will become more evident from an examination of the data in Table II.

2. RELATIONSHIP OF VISUAL QUALITY TO AGE: It is well known that visual acuity declines with advance in age. We felt it desirable to study the relationship of the visual quality of our employees with respect to their age. The results are shown in Table II. The employees were visually classified in the three general categories of "satisfactory," "deficient," and "unsatisfactory" as defined in the introductory section, on the basis of their existing visual skills at the time of the survey. If the employee was wearing glasses he was tested with these glasses and classified accordingly. If he was not wearing glasses, he was tested and classified.

It will be observed that there is a definite decline in the over-all visual quality of our 10,372 employees with increasing age, ranging from a

TABLE I.
AGE DISTRIBUTION AND MEDIAN AGES OF GROUPS

	Number of Employees in Each Age Group							Median Age
	<21	21-30	31-40	41-50	51-60	>60	Total	
Male:								
A. Factory:								
1. Satisfactory	34	492	999	555	404	102	2586	38.5
2. Deficient	19	246	463	409	485	152	1774	43.0
3. Unsatisfactory	8	123	296	603	745	221	1996	48.5
4. Total	61	861	1758	1567	1634	475	6356	43.0
B. Salary:								
1. Satisfactory	25	213	350	223	96	25	932	36.5
2. Deficient	5	88	124	115	100	30	462	40.5
3. Unsatisfactory	4	35	58	126	107	23	353	44.0
4. Total	34	336	532	464	303	78	1747	39.0
Female:								
A. Factory:								
1. Satisfactory	1	77	325	143	70	7	623	38.0
2. Deficient	0	58	182	170	79	11	500	40.5
3. Unsatisfactory	0	18	83	157	104	15	377	45.5
4. Total	1	153	590	470	253	33	1500	41.5
B. Salary:								
1. Satisfactory	89	99	107	53	13	0	361	28.0
2. Deficient	46	98	51	55	11	4	265	30.0
3. Unsatisfactory	13	33	27	42	25	3	143	37.0
4. Total	148	230	185	150	49	7	769	31.0

TABLE II.
RELATIONSHIP OF VISUAL QUALITY AND AGE

	Number and Percentage of Employees in Each Visual Classification													
	<21		21-30		31-40		41-50		51-60		>60		All Ages	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Male:														
A. Factory:														
1. Satisfactory	34	55.7	492	57.2	999	56.8	555	35.4	404	24.7	102	21.5	2586	40.7
2. Deficient	19	31.2	246	28.5	463	26.3	409	26.1	485	29.7	152	32.0	1774	27.9
3. Unsatisfactory	8	13.1	123	14.3	296	16.9	603	38.5	745	45.6	221	46.5	1996	31.4
4. Total	61	100.0	861	100.0	1758	100.0	1567	100.0	1634	100.0	475	100.0	6356	100.0
B. Salary:														
1. Satisfactory	25	73.5	213	63.4	350	65.8	223	48.1	96	31.7	25	32.0	932	53.3
2. Deficient	5	14.7	88	26.2	124	23.3	115	24.8	100	33.0	30	38.5	462	26.5
3. Unsatisfactory	4	11.8	35	10.4	58	10.9	126	27.1	107	35.3	23	29.5	353	20.2
4. Total	34	100.0	336	100.0	532	100.0	464	100.0	303	100.0	78	100.0	1747	100.0
C. Factory & Salary:														
1. Satisfactory	59	62.2	705	59.0	1349	58.9	778	38.3	500	25.8	127	22.9	3518	43.4
2. Deficient	24	25.2	334	27.8	587	25.7	524	25.8	585	30.2	182	32.9	2236	27.6
3. Unsatisfactory	12	12.6	158	13.2	354	15.4	729	35.9	852	44.0	244	43.2	2349	29.0
4. Total	95	100.0	1197	100.0	2290	100.0	2031	100.0	1937	100.0	553	100.0	8103	100.0
Female:														
A. Factory:														
1. Satisfactory	1	100.0	77	50.3	325	55.1	143	30.4	70	27.7	7	21.2	623	41.5
2. Deficient	0	0	58	37.9	182	30.8	170	36.2	79	31.2	11	33.3	500	33.3
3. Unsatisfactory	0	0	18	11.8	83	14.1	157	33.4	104	41.1	15	45.5	377	25.1
4. Total	1	100.0	153	100.0	590	100.0	470	100.0	253	100.0	33	100.0	1500	100.0
B. Salary:														
1. Satisfactory	89	60.1	99	43.0	107	57.8	53	35.3	13	26.5	0	0	361	47.0
2. Deficient	46	31.1	98	42.6	51	27.6	55	36.7	11	22.4	4	57.2	265	34.5
3. Unsatisfactory	13	8.8	33	14.4	27	14.6	42	28.0	25	51.0	3	42.8	143	18.5
4. Total	148	100.0	230	100.0	185	100.0	150	100.0	49	100.0	7	100.0	769	100.0
C. Factory & Salary:														
1. Satisfactory	90	60.4	176	46.0	432	55.7	196	31.6	83	27.5	7	17.5	984	43.4
2. Deficient	46	30.9	156	40.7	233	30.1	225	36.3	90	29.8	15	37.5	765	33.7
3. Unsatisfactory	13	8.7	51	13.3	110	14.2	199	32.1	129	42.7	18	45.0	520	22.9
4. Total	149	100.0	383	100.0	775	100.0	620	100.0	302	100.0	40	100.0	2269	100.0
Both Sexes, Factory and Salary:														
1. Satisfactory	149	61.1	881	55.8	1781	58.2	974	36.7	583	26.1	134	22.6	4502	43.4
2. Deficient	70	28.7	490	31.0	820	26.7	749	28.3	675	30.1	197	33.2	3001	28.9
3. Unsatisfactory	25	10.2	209	13.2	464	15.1	928	35.0	981	43.8	262	44.2	2869	27.7
4. Total	244	100.0	1580	100.0	3065	100.0	2651	100.0	2239	100.0	593	100.0	10372	100.0

maximum of 73.5% "satisfactory" vision in the male salary group under 21 years of age to a minimum of 21.2% "satisfactory" in the female factory group over 60 years of age. In the combined age groups we observed significant differences in the degree of "satisfactory" vision in the two employment classifications (40.7% for factory males; 53.3% for salary males—41.5% for factory females; 47% for salary females). Conversely we observed an increase in the degree of "unsatisfactory" vision for the combined age groups of factory personnel over salary personnel (31.4% for factory males; 20.2% for salary males—25.1% for factory females; 18.5% for salary females). We observed no significant difference in the degree of "deficient" vision between the two employment classifications (27.9% for factory males; 26.5% for salary males—33.3% for factory females; 34.5% for salary females), but did observe a real difference between sexes in the same employment classification.

3. RELATIONSHIP BETWEEN VISUAL QUALITY, AGE, AND ACCIDENT RECORD: It is frequently assumed that a relationship exists between visual quality and freedom from occupational injuries. Several publications attempting to show this have come

TABLE III.
RELATIONSHIP BETWEEN AGE AND ACCIDENT RECORD—ALL VISUAL CLASSIFICATIONS

	Factory					Salary				
Males: Age	Number of Employees	Number having Accidents	Percent having Accidents	Number of Accidents	Accidents per Employee	Number of Employees	Number having Accidents	Percent having Accidents	Number of Accidents	Accidents per Employee
<21	61	21	34.5	53	0.87	34	6	17.7	7	0.21
21-30	861	498	57.9	1167	1.35	336	96	28.6	146	0.43
31-40	1758	1009	57.3	2229	1.27	532	111	20.9	148	0.28
41-50	1567	720	45.9	1395	0.89	464	80	17.2	124	0.27
51-60	1634	673	41.2	1186	0.73	303	48	15.8	78	0.26
>60	475	154	32.4	252	0.53	78	11	14.1	19	0.24
Total	6356	2075	31.6	6282	0.99	1747	352	20.1	522	0.30
Females: Age										
<21	1	0	0	0	0	148	16	10.8	17	0.11
21-30	153	72	47.1	121	0.79	230	38	16.5	49	0.21
31-40	590	228	38.7	345	0.57	185	20	10.8	35	0.19
41-50	470	169	35.9	241	0.51	150	21	14.0	26	0.17
51-60	253	78	30.8	128	0.51	49	6	12.3	7	0.14
>60	33	9	27.2	10	0.30	7	2	28.6	2	0.29
Total	1500	556	37.1	845	0.56	769	103	13.4	127	0.18

TABLE IV.
RELATIONSHIP BETWEEN VISUAL QUALITY, AGE, AND ACCIDENT RECORD
(UNCORRECTIBLE DEFECTS)

	Satisfactory Vision					Deficient Vision				
	Number of Employees	Number having Accidents	Percent having Accidents	Number of Accidents	Accidents per Employee	Number of Employees	Number having Accidents	Percent having Accidents	Number of Accidents	Accidents per Employee
A. Factory:										
Males:										
Age										
<21	34	11	32.4	29	0.85	19	6	31.5	15	0.79
21-30	492	281	57.1	657	1.34	246	142	57.7	315	1.28
31-40	999	579	58.0	1306	1.31	463	257	55.5	577	1.25
41-50	555	257	46.3	503	0.91	409	190	46.5	374	0.91
51-60	404	193	47.8	346	0.86	485	188	38.8	325	0.67
>60	102	26	25.5	40	0.39	152	48	31.6	78	0.51
Total	2586	1347	52.0	2881	1.12	1774	831	46.8	1684	0.95
Females:										
Age										
<21	1	0	0	0	0	0	0	0	0	0
21-30	77	29	37.7	51	0.66	58	34	58.6	47	0.81
31-40	325	127	39.0	189	0.58	182	74	40.6	118	0.65
41-50	143	56	39.2	78	0.55	170	51	30.0	73	0.43
51-60	70	22	31.5	36	0.51	79	26	32.9	43	0.55
>60	7	1	14.3	1	0.14	11	2	18.2	2	0.18
Total	623	235	37.7	355	0.57	500	187	37.4	283	0.57
B. Salary:										
Males:										
Age										
<21	25	4	16.0	5	0.20	5	1	20.0	1	0.20
21-30	213	60	28.2	88	0.41	88	26	29.5	39	0.44
31-40	350	71	20.3	98	0.28	124	31	25.0	38	0.31
41-50	223	49	22.0	68	0.30	115	18	15.7	22	0.19
51-60	96	16	16.7	31	0.32	100	16	16.0	26	0.26
>60	25	2	8.0	7	0.28	30	3	10.0	5	0.17
Total	932	202	21.7	297	0.32	462	95	20.5	131	0.28
Females:										
Age										
<21	89	11	12.4	11	0.12	46	4	8.7	5	0.11
21-30	99	23	23.3	31	0.31	98	13	13.3	15	0.15
31-40	107	10	9.4	19	0.18	51	3	5.9	3	0.06
41-50	53	9	17.0	12	0.23	55	5	9.1	6	0.11
51-60	13	0	0	0	0	11	3	27.3	3	0.27
>60	0	0	0	0	0	4	1	25.0	1	0.25
Total	361	53	14.7	73	0.20	265	29	10.9	33	0.12

to our attention.[2,3,4,5,6] We, therefore, analyzed our data to determine whether or not any such relationship exists among our employees. Table III shows the relationship between age and occupational accident occurrence of our group regardless of visual quality. In Table IV a comparison is made between those employees having no defects ("satisfactory" group) versus those with uncorrectible defects ("deficient" group). In Table V is shown the same relationship between those employees having no defects ("satisfactory" group) and those having both correctible and uncorrectible defects ("deficient" and "unsatisfactory" groups). In Table VI is shown the relationship between the group with no correctible defects ("satisfactory" and "deficient") and those with correctible defects ("unsatisfactory"). The data are presented in each table both with respect to percentage of employees in a given age group having occupational accidents and the number of occupational accidents per employee. All data cover a two-year period immediately prior to the individual employee's visual test.

There appear to be several significant facts to be learned from these data:

(a) The factor of age is an important one—at least in our employees—with respect to the "production" of accidents (see Table III).

(b) The employees in the 21-30 age group are the greatest accident producers (see Table III).

(c) A general decline in the incidence of accidents, with increasing age, begins with the 21-30 year group (see Table III).

(d) There is no difference in the accident incidence between our employees possessing "satisfactory" vision and those with "deficient" vision (see Table IV).

(e) There is no difference in the accident incidence between our employees possessing "satisfactory" vision and those with combined "deficient" and "unsatisfactory" vision (see Table V).

(f) Among males whose ages are below 21 or above 60 years of age there appears to be a significant difference in accident incidence, between those having no correctible visual defects ("satisfactory" and "deficient" groups) and those with correctible defects ("unsatisfactory" group) (see Table VI). However, a statistical test of the data shows that because of the small size of the group in each case, the apparent large differences are not statistically significant.*

We have not been able to demonstrate in our study any outstanding differences in accident occurrence between those people with good and those with poor vision, such as has been reported elsewhere.[2,3,4,5,6] This may be the result of several factors, such as severity of job visual requirements, potential job safety hazards, length of time on job, etc. Our data would seem to indicate that if vision is significant in accident occurrence, then some of these other factors are of equal or more importance, and tend to neutralize the effect of inadequate vision. The probable answer is that vision is not as important a factor in causing accidents as is lack of job experi-

*We are indebted to Mr. Fred W. Moyer, of the B. F. Goodrich Company, for statistical analysis of the data.

TABLE V.

RELATIONSHIP BETWEEN VISUAL QUALITY, AGE, AND ACCIDENT RECORD (ALL DEFECTS)

	Satisfactory Vision					Deficient and Unsatisfactory Vision				
Ages	Number of Employees	Number having Accidents	Percent having Accidents	Number of Accidents	Accidents per Employee	Number of Employees	Number having Accidents	Percent having Accidents	Number of Accidents	Accidents per Employee
A. Factory:										
Males:										
<21	34	11	32.4	29	0.85	27	10	37.0	24	0.89
21-30	492	281	57.1	657	1.34	369	217	58.8	510	1.38
31-40	999	579	58.0	1306	1.31	759	430	56.7	923	1.22
41-50	555	257	46.3	503	0.91	1012	463	45.7	892	0.88
51-60	404	193	47.8	346	0.86	1230	480	39.0	840	0.68
>60	102	26	25.5	40	0.39	373	128	34.3	212	0.57
Total	2586	1347	52.0	2881	1.12	3770	1728	45.8	3401	0.90
Females:										
<21	1	0	0	0	0	0	0	0	0	0
21-30	77	29	37.7	51	0.66	76	43	56.5	70	0.92
31-40	325	127	39.0	189	0.58	265	101	38.1	156	0.59
41-50	143	56	39.2	78	0.55	327	113	34.5	163	0.50
51-60	70	22	31.5	36	0.51	183	56	30.6	92	0.50
>60	7	1	14.3	1	0.14	26	8	30.7	9	0.35
Total	623	235	37.7	355	0.57	877	321	36.6	490	0.56
B. Salary:										
Males:										
<21	25	4	16.0	5	0.20	9	2	22.2	2	0.22
21-30	213	60	28.2	88	0.41	123	36	29.3	58	0.47
31-40	350	71	20.3	98	0.28	182	40	22.0	50	0.28
41-50	223	49	22.0	68	0.30	241	31	12.9	56	0.23
51-60	96	16	16.7	31	0.32	207	32	15.5	47	0.23
>60	25	2	8.0	7	0.28	53	9	17.0	12	0.23
Total	932	202	21.7	297	0.32	815	150	18.4	225	0.28
Females:										
<21	89	11	12.4	11	0.12	59	5	8.5	6	0.10
21-30	99	23	23.3	31	0.31	131	15	11.4	18	0.14
31-40	107	10	9.4	19	0.18	78	10	12.8	17	0.22
41-50	53	9	17.0	12	0.23	97	12	12.4	14	0.14
51-60	13	0	0	0	0	36	6	16.7	7	0.19
>60	0	0	0	0	0	7	2	28.6	2	0.29
Total	361	53	14.7	73	0.20	408	50	12.3	64	0.16

ence. It is logical that the older individual is the more experienced workmen. With experience comes caution. Recklessness is an attribute of youth. These latter conclusions are borne out in automobile accident statistics. Many automobile insurance companies, because of this accident proneness, routinely charge higher premiums to younger drivers.

While these statistics do not include a separate tabulation of major or lost-time accidents in relation to vision, it is probably of no great importance. It must be pointed out that all accidents except for fortunate circumstances could be major in character. Accident proneness can only be determined by studying all accidents, both major and minor, such as presented in this study.

4. RELATIONSHIP OF SEX, AGE, AND EMPLOYMENT CLASSIFICATION WITH UNCORRECTIBLE DEFECTS: The relationship of the incidence of uncorrectible defects, as well as the frequency of each of the individual defects, was determined for the various age groups in each of our two employment classifications, and in both sexes. For this determination we used only those employees falling within our "satisfactory" and "deficient" groups inasmuch as it was felt that no satisfactory analysis could be made of those individuals having poor visual acuity or other correctible defects. Three types of uncorrectible defects were analyzed: color deficiency, depth perception deficiency, and suppression of one eye (binocular visual deficiency). Targets are carried on the Sight Screener for performing the last two tests. The machine, however, does not test color deficiency and, therefore, a series of 10 color charts was used for this purpose. A failure by an individual on more than two of the color charts classified him as having color deficiency, without regard to severity.

The depth perception test of the Sight Screener consists in properly recognizing groups of small circles, some of which are elevated above the others. Failure properly to recognize less than three of these groups of circles classified the individual as having depth perception deficiency.

The one-eye suppression test consists of fusing into a common image two images separately seen by each eye. Failure to do this classified the individual as possessing binocular visual deficiency, or one-eye suppression.

The results of the analysis of 7503 employees are shown in Table VII. These indicate a general increase in these three visual deficiencies with age. The defect most prevalent was depth perception deficiency; the least, one-eye suppression. We also observed a greater incidence of color deficiency among female employees than in males. This was 18.2% and 11.9% respectively. One-eye suppression appeared more frequently in males (10%) than in females (1.8%).

5. CORRECTIVE EYE GLASS REQUIREMENTS: The extent of corrective eye glass requirements for personnel was studied and the results are shown in Table VIII. The number of individuals wearing glasses at the time of the test was tabulated. Based on the results of the visual test, the num-

TABLE VI.
RELATIONSHIP BETWEEN VISUAL QUALITY, AGE, AND ACCIDENT RECORD
(CORRECTIBLE DEFECTS)

	"Satisfactory" and "Deficient" Vision					Unsatisfactory Vision				
Ages	Number of Employees	Number having Accidents	Percent having Accidents	Number of Accidents	Accidents per Employee	Number of Employees	Number having Accidents	Percent having Accidents	Number of Accidents	Accidents per Employee
A. Factory:										
Male:										
<21	53	17	32.1	44	0.83	8	4	50.0	9	1.13
21-30	738	416	56.4	972	1.32	123	75	60.9	195	1.59
31-40	1462	836	57.1	1883	1.29	296	173	58.4	346	1.17
41-50	964	447	46.4	877	0.91	603	273	45.3	518	0.86
51-60	889	381	42.9	671	0.76	745	292	39.2	515	0.69
>60	254	74	29.1	118	0.46	221	89	36.1	134	0.61
Total	4360	2171	49.8	4565	1.05	1986	897	44.9	1717	0.86
Females:										
<21	1	0	0	0	0	0	0	0	0	0
21-30	135	63	46.7	98	0.73	18	9	50.0	23	1.28
31-40	507	201	39.7	307	0.61	83	27	32.5	38	0.46
41-50	313	107	34.2	151	0.48	157	62	39.5	90	0.57
51-60	149	48	32.2	79	0.53	104	30	28.8	49	0.47
>60	18	3	16.7	3	0.17	15	6	40.0	7	0.47
Total	1123	422	37.5	638	0.57	377	134	35.5	207	0.55
B. Salary:										
Male:										
<21	30	5	16.7	6	0.20	4	1	25.0	1	0.25
21-30	301	103	34.2	127	0.42	35	10	28.5	19	0.54
31-40	474	102	21.5	136	0.29	58	9	15.5	12	0.21
41-50	338	67	19.8	90	0.27	126	13	10.3	34	0.27
51-60	196	32	16.3	51	0.26	107	16	15.0	21	0.20
>60	55	5	9.1	12	0.22	23	6	26.1	7	0.30
Total	1394	314	22.5	422	0.30	353	55	15.6	94	0.27
Females:										
<21	135	15	11.1	16	0.12	13	1	7.7	1	0.08
21-30	197	36	18.3	46	0.23	33	2	6.1	3	0.09
31-40	158	12	7.6	13	0.08	27	7	25.9	14	0.52
41-50	108	14	13.0	18	0.17	42	7	16.7	8	0.19
51-60	24	3	12.5	3	0.13	25	3	12.0	4	0.16
>60	4	1	25.0	1	0.25	3	1	33.3	1	0.33
Total	626	81	13.0	97	0.16	143	21	14.7	31	0.22

ber of individuals requiring either a change in their present glasses, or the wearing of corrective eye glasses—if they were not already doing so—was tabulated. These two values, with their calculated percentages, are indicated as "number wearing glasses" and "number needing glasses" respectively. In two instances it will be seen that the former exceeded the latter. Several reasons for this exist: (1) our minimum visual standards are somewhat lower than the maximum possible corrected vision; (2) a number of individuals were wearing glasses who did not actually require them.

As would be expected, a general increase in the need for wearing corrective eye glasses, with age, occurred among all of our groups. In ages above 50 this amounted to better than 90% in all cases. In all age groups 53.6% required corrective glasses. A somewhat lower percentage of males than females required correction, although the difference is probably not significant. There was no particular difference in the corrective eye glass requirements of the two employment classifications.

Summary

1. VISUAL screening tests, properly conducted by trained personnel, are valuable in determining the visual acuity of large numbers of people. They should be considered as a means of survey and not as a diagnostic eye test. Final determination of the actual visual quality of an individual should be made by an ophthalmologist.

2. Most people are interested in themselves

TABLE VII.
RELATIONSHIP OF AGE AND UNCORRECTIBLE DEFECTS

	Color Deficiency		Depth Perception Deficiency		Suppression		Total With Satisfactory and Deficient Vision
	Number	Percent	Number	Percent	Number	Percent	
Male:							
A. Factory:							
Age							
<21	7	13.2	12	22.6	0	0	53
21-30	82	11.1	185	25.1	17	2.3	738
31-40	157	10.7	315	21.5	24	1.6	1462
41-50	119	12.4	308	31.9	122	12.7	964
51-60	102	11.5	435	49.0	301	33.9	889
>60	44	17.4	132	52.0	75	29.5	254
Total	511	11.7	1387	31.8	539	12.4	4360
B. Salary:							
Age							
<21	3	10.0	3	10.0	0	0	30
21-30	33	11.0	55	18.3	5	1.7	301
31-40	60	12.7	76	16.1	4	0.8	474
41-50	28	8.3	91	26.9	7	2.1	338
51-60	37	18.9	79	40.3	13	6.6	196
>60	14	25.4	10	18.2	6	10.9	55
Total	175	12.5	314	22.5	35	2.5	1394
C. Factory and Salary:							
Age							
<21	10	12.1	15	18.1	0	0	83
21-30	115	11.1	240	23.1	22	2.1	1039
31-40	217	11.2	391	20.2	28	1.4	1936
41-50	147	11.3	399	30.6	129	9.9	1302
51-60	139	12.8	514	47.4	314	28.1	1085
>60	58	18.8	142	46.0	81	26.2	309
Total	686	11.9	1701	29.6	574	10.0	5754
Female:							
A. Factory:							
Age							
<21	0	0	0	0	0	0	1
21-30	30	22.2	37	27.4	0	0	135
31-40	68	13.4	118	23.3	4	0.8	507
41-50	62	19.8	125	39.9	15	4.8	313
51-60	23	15.5	60	40.3	7	4.7	149
>60	9	50.0	5	27.8	1	5.6	18
Total	192	17.1	345	30.7	27	2.4	1123
B. Salary:							
Age							
<21	22	16.3	27	20.0	0	0	135
21-30	42	21.3	62	31.5	3	1.5	197
31-40	25	15.8	32	20.2	0	0	158
41-50	28	25.9	35	32.4	2	1.9	108
51-60	7	29.1	8	33.3	0	0	24
>60	2	50.0	4	100.0	0	0	4
Total	126	20.1	168	26.8	5	0.8	626
C. Factory and Salary:							
Age							
<21	22	16.2	27	19.9	0	0	136
21-30	72	21.7	99	29.8	3	0.9	332
31-40	93	14.0	150	22.6	4	0.6	665
41-50	90	21.4	160	38.0	17	4.0	421
51-60	30	17.4	68	39.3	7	4.0	173
>60	11	50.0	9	40.9	1	4.5	22
Total	318	18.2	513	29.4	32	1.8	1749

and will correct their visual defects when such defects are pointed out to them.

3. The offering of a visual screening test on a voluntary confidential basis is an effective means for a company to promote employee relations and improve employee morale. Such a program should be started on the basis of the benefits it offers to the employee with the expectancy of attaining better quality and more efficient production.

4. Older individuals have a greater percentage of "unsatisfactory" vision than younger individuals.

The older the person, the poorer the vision.

5. Visual quality is probably not too great a factor in the causing of accidents. Younger men under 40 have more accidents of all types, major and minor, than men over 40 years of age. Since more "unsatisfactory" vision occurs in men over 40 years of age it suggests either that vision is not important in causing accidents or that people with "satisfactory" vision are more accident prone. This latter conclusion does not seem feasible.

6. Females have more uncorrectible defects ("deficient" vision) than males.

7. Uncorrectible defects increase with age. Depth perception deficiency is the most prevalent defect and the least is one-eye suppression.

8. There is a greater incidence of color deficiency among females.

9. One-eye suppression is more frequent among males.

10. In our group 90% of all people over 50 years of age regardless of the type of work they are doing need corrective glasses; and 53.6% of all people in the age groups between 21 and 65 require corrective lenses.

An employee visual survey is a worthwhile project for any industrial management to undertake. The results will probably be surprising to management in that they will learn that they have many employees with unsatisfactory vision. These partially blind employees are undoubtedly turning out poor quality merchandise, which has a bad effect on the company's reputation.

This survey indicates that there is probably little or no connection between unsatisfactory vision and accident proneness. It does confirm that the older more experienced employee is the safest. Along with confirmation of the precept that there is no substitute for experience, is confirmation of the principle that younger people have more accidents. It would appear that mod-

TABLE VIII.
CORRECTIVE EYEGLASS REQUIREMENTS FOR TESTED PERSONNEL

	Number in Each Age Group						
	<21	21-30	31-40	41-50	51-60	>60	Total
A. Factory:							
1. Male							
Number tested	61	861	1758	1567	1634	475	6356
Number Wearing Glasses	4	126	235	623	1314	416	2718
Percentage Wearing Glasses	6.6	14.6	13.4	39.8	80.3	87.5	42.7
Number Needing Glasses	9	146	284	994	1597	475	3505
Percentage Needing Glasses	14.8	17.0	16.2	63.4	97.7	100.0	55.2
2. Female							
Number tested	1	153	590	470	253	33	1500
Number Wearing Glasses	0	35	189	299	242	30	795
Percentage Wearing Glasses	0	22.9	32.0	63.6	95.6	90.9	53.0
Number Needing Glasses	0	29	121	330	252	31	763
Percentage Needing Glasses	0	19.0	20.5	70.2	99.6	94.0	50.8
B. Salary:							
1. Male							
Number tested	34	336	532	464	303	78	1747
Number Wearing Glasses	23	139	238	318	296	73	1087
Percentage Wearing Glasses	67.7	41.3	44.7	68.5	97.7	93.7	62.2
Number Needing Glasses	19	98	144	296	298	77	926
Percentage Needing Glasses	38.2	29.2	27.1	63.7	98.3	98.8	53.0
2. Female							
Number tested	148	230	185	150	49	7	769
Number Wearing Glasses	24	210	98	125	45	7	509
Percentage Wearing Glasses	16.2	91.3	53.0	83.3	91.9	100.0	66.1
Number Needing Glasses	17	113	54	108	45	7	344
Percentage Needing Glasses	11.5	49.2	29.2	72.0	91.9	100.0	44.8
C. Factory and Salary:							
1. Male							
Number tested	95	1197	2290	2031	1937	553	8103
Number Wearing Glasses	27	265	473	941	1610	489	3805
Percentage Wearing Glasses	28.4	22.2	20.6	46.3	83.2	88.4	46.9
Number Needing Glasses	22	244	428	1290	1895	552	4431
Percentage Needing Glasses	23.2	20.4	18.7	63.5	97.8	99.8	54.6
2. Female							
Number tested	149	383	775	620	302	40	2269
Number Wearing Glasses	24	245	287	424	287	37	1304
Percentage Wearing Glasses	16.1	64.0	37.0	68.5	95.1	92.5	57.5
Number Needing Glasses	17	142	175	438	297	38	1107
Percentage Needing Glasses	11.4	37.1	22.6	70.6	98.3	95.0	48.6
3. Both Sexes							
Number tested	244	1580	3065	2651	2239	593	10372
Number Wearing Glasses	51	510	760	1365	1897	526	5109
Percentage Wearing Glasses	20.9	32.3	24.8	51.5	84.7	88.7	49.3
Number Needing Glasses	39	386	603	1728	2192	590	5538
Percentage Needing Glasses	16.0	24.4	19.7	65.2	97.9	99.5	53.6

ern safety engineers should take this into account and carefully supervise and train young employees.

The survey proves that people for the most part are anxious to help themselves. It would seem that a continuing opportunity should be given to the employees to have their vision checked. Perhaps it would even be better to offer them the opportunity of being examined by an ophthalmologist with more accurate testing equipment.

A company should not institute a visual testing program for the sole purpose of reducing accident occurrence. A protective eye glass program would of course reduce eye injuries.

Industry has the opportunity of doing a brilliant job of preventive medicine. Visual care is one of the ways of fulfilling this opportunity.

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Emotions in Occupational Behavior

WHAT are the specific problems encountered in an industry in which the health service is watching the personnel with a keen appreciation of the role of emotions in occupational behavior? So far as the serious disturbances are concerned, there are the depressed employees who need immediate psychiatric assistance and who are referred promptly for hospitalization. A rare schizophrenia is seen, most frequently as a recurrence of an old service-connected upheaval. The anxiety states are encountered, and, at lengthy intervals, the uncommon involutional or paranoid patient is found. For these, there is prompt identification and reference for help, and, for some of the latter, specific security measures are taken to preclude a premature return to the job. Of greater interest and importance, though, to the research effort, are the more subtle personality changes, the less well-defined symptomatologies, and the somatic manifestations clung to so desperately by the employee who is reluctant to admit that his disease may be psychogenic in origin. A research physicist finds that he is unable to concentrate on his work, and, on doing a preliminary literature search, discovers that he reads and rereads a single line of a document, absorbing none of its content. Interviews reveal a seething domestic situation, beyond the ability of the patient to handle. A brilliant engineer responsible for new developments in design work prohibits vacations for his group—many of whom, after round-the-year, six-and-seven-day work weeks, almost need sabbatical leaves, let alone the regular two-week vacation. As he drives himself, so he drives his men—and then wonders why a mass neurosis appears. A chemist offers the complaint that he knowingly alienates every one, and that he hears himself saying things that are derogatory and friend-repelling, but is unable to turn off these insulting verbal freshets. A carpenter with a moderate-to-severe sense of religiosity becomes preoccupied over his errant son, fails to keep a thumb away from the revolving blades of a jointer, and loses a phalanx; while a cafeteria attendant who for years has been preparing salads one day quite thoroughly slices a finger. Why? Worry over a son scheduled for Korea. A summer visiting professor, embroiled in the intra-departmental politics of academic life, comes to the dispensary for a sedative and presents a duodenal ulcer, hypertension, obesity, and hay fever. He accepts the etiologic explanations and utilizes his laboratory visit for some effective brief therapy. A research scientist comes in too often because of recurrent headaches, and investigation reveals an ambitious wife pushing him constantly "to get ahead," which means thrusting him into administrative posts, away from his first love, the laboratory. The ill effects of these behavior patterns are seen in an increase in absenteeism, turnover, injuries, rest periods, and dispensary visits; a lowered production; a too heavy reliance on supervision; an impaired efficiency, and needless additions to the rumor factory. Apprehensions appear that need new and better methods of communication to allay. Further hurt to the industrial society is felt, for all—the supervisor, the fellow employee, the supervised—must protect themselves, as Kubie has put it, from the neurotic brought to work by the aberrant personality. It is this impairment of interpersonal relations that spells slowing of the research effort, and action directed toward preventive emotional maintenance is more than worth the effort.

—From "Progressive Industry and the Worried Employee," by Jean Spencer Felton, M.D., in *Mental Hygiene*, October, 1953.

Employment of the Aging

—APPRAISING THE BARRIERS

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THE desirability of retaining aging employees in industry and employing aging applicants has been often portrayed. We fully concur that keeping the aged worker employed at a suitable task is desirable. There are, however, practical difficulties which arise, at least on occasion, which interfere with the accomplishment of this aim and which we think might well be considered by those interested in the problems of older age.

The first is in connection with the physical ability of the aging to perform manual work. Much has been said and written in regard to their stability, loyalty to the job, mature judgment, faithful attendance—in short, their superiority as employees. However, the fact remains, too often ignored, that the irreversible changes of age dictate a lessening of physical activity. We can, and do, advise the aging person to "act his age," discouraging him from the strenuous athletics, the long hiking trip, or the competitive physical ordeal undertaken with enthusiasm and impunity by youth. We cannot, in the same breath, advise him that he is as fit, let alone more fit, to carry out strenuous and arduous activities on the job.

Some older people, in any industry, have no job placement problem, as their education, their experience, or their seniority has cast them in assignments which may be carried out comfortably and safely despite advancing years. Others are in industries in which transfer to easier or less arduous duties is easily accomplished because of the availability of lighter jobs.

In those industries, however, in which an appreciable percentage, if not the majority, of jobs require moderate or greater than moderate exertion and in which the lighter jobs are already filled by those whose qualifications or seniority are greater, there is a real problem. Its solution may require changes in attitude on the part of both managements and unions.

Management may increasingly find it desirable, if not actually necessary, to re-engineer jobs by "effort-saving" devices or installations to reduce the physical demands of the job. "Labor-saving machinery," a term we have grown used to, implies a reduction in the number of workers required for a job. "Effort-saving installations" implies that the same number of people will be left on the same jobs but that they will be able to do the same work for years longer because of the decreased physical demands of the job.

Labor organizations may be able to contribute to the solution of this problem by endorsing the principle of the "regrouping of job assignments." Studies in industry might reveal that there are many jobs, the duties of which are light for longer than seven hours a day but are heavy for minutes of the eighth hour. The inability of an older employee to carry out these minutes of heavy duty, or the risks to which they subject him, may disqualify him. The "share-and-share-alike" philosophy, which is part of the creed of some unions at least, forbids the reassignment of these minutes of heavier work to a younger, stronger member and his relinquishment of some lighter duty he is now performing.

THE second point for consideration has to do with the unemployment of older persons. The problem of the "older person in industry" is meaningless unless the older person concerned is employed. The old recipe for rabbit pie started out with the direction, "First, catch your rabbit . . . ." If enthusiastic rabbit hunters found the rabbits growing scarce, they would probably inquire into the cause of the scarcity. If many people whose only defect is advancing chronological age cannot, "first, get a job . . . ." it would seem well for those who are interested in their welfare in industry to search for causes of their unemployment.

Exploration might reveal that a most significant (and possibly least discussed) cause for rejection of the middle-aged or older applicants for employment is the industrial employer's fear of a workmen's compensation claim under the "aggravation of a pre-existing condition" clause. For those who live in states where workmen's compensation acts do not contain this phrasing, an explanation is in order.

A number of states, of which California is an example, have worded their workmen's compensation statutes to afford the benefits of the act under an "all-inclusive" policy. Not only is compensation mandatory for any injury or illness resulting from the occupation, but the employer is also held responsible for any "aggravation of a pre-existing condition." The administration of these acts, which were passed for the benefit of the employed individual, is generally carried out with a liberal attitude toward the claimant. Philosophically, this enlightened policy seems to be generally accepted as justifiable and sound.

Within the last few years, however, employers and insurance carriers with increasing frequency state they have been confronted with awards for

From a presentation read at the Sixth Annual Meeting of the Gerontological Society, San Francisco, August 27, 1953.

compensation, permanent disability, or death, which they have felt were unrealistic and ill-founded. Trivial trauma has been held to be responsible for death or permanent disability from some already well established disease or bodily infirmity, and the total costs of such decisions are enough, apparently, to be causing alarm in insurance and employer circles.

When one considers a belief which has supporters in the Workmen's Compensation Commissions of state governments that there need be no actual event or unusual strain, but that attendance on a job itself, no matter how sedentary, constitutes a "strain," this apprehension may be understood.

MEDICALLY, it is extremely difficult—and for most medical men impossible—to accept that any every-day effort is the cause of death in the man who has been followed clinically through the progressive stages of arterial sclerosis, with the physical stage recognized as being set for inevitable disaster without any event required to spring the trigger mechanism of an arterial catastrophe.

The brittled artery of the heart, the arthritic spine, the frayed tendon of the shoulder, the swollen great toe of the gouty, the bones weakened by a cancerous growth, are just some of the examples of physical conditions which appear in the aging but are rare in the younger worker. It is not too difficult to understand the reluctance of an employer to risk being assessed the cost of a lifetime compensation award and/or a death claim for the newly-hired employee with one of these conditions, because of some complaint of trivial trauma. Yet, that is the situation confronting him under the interpretation of the "aggravation of a pre-existing condition" clause in a number of states.

It may well be that a study of compensation laws would reveal a sufficiently large number of unrealistic awards—each advantageous to individual plaintiffs—to have, collectively, lowered the age limit above which applicants for employment are being rejected in industry—this, at a time when more arguments for raising the age limit for hiring are being advanced than ever.

In a recent article entitled, "Fear, Frustration and Futility," Johnstone[1] speaks of a mechanic who had been refused employment by various industries on the basis of a moderately elevated blood pressure, certainly a common finding in the aging applicant for employment. Speaking of this particular individual Johnstone states, "He is a victim of circumstances not of his own doing. Nor can he justifiably blame management. Labor has insisted on the broadest interpretation of the workmen's compensation law. Undoubtedly, in a spirit of trying to secure the greatest benefits for the working man, labor has unwittingly placed itself in a position similar to the Australian who tried to throw away his boomerang."

Later in the same article Johnstone says: "Over the years, labor has insisted upon increasingly broader interpretation of the workmen's compensation act. Granting the rightness of this in some instances, it must also be admitted that certain changes which seemingly benefit the mass also result in injustice to an individual worker. A demand or bargaining victory for a principle that applies to 50,000 members may seem beneficial to a large group, but if it works hardship on an individual then there should be some means of acknowledging the exception."

The opinions expressed in these quotations are compatible with my own opinion that the trend in industry may be increasingly to reject for employment applicants who present physical difficulties, particularly the potentially more serious defects of increasing age, in spite of the fact that executives, as individuals, may be at the same time becoming more and more conditioned toward the belief that aging people can be and should be usefully employed. This apparent discrepancy in the attitudes of executives may be explained by their fear of paying the penalty of a continuing monthly compensation award and/or the assessment of a large, lump-sum award because of a trivial or minor injury. Thus, while believing personally that the older person can be useful and should be employed, administrators fear the threat of potentially great costs for a short-term employment.

These are the points I submit for consideration. Representatives of labor unions, managements, social agencies, the social scientists, and the medical profession all have expressed concern over the aging worker. Can representatives of each group by collectively studying the problem lower these barriers which seem insurmountable when approached from the limited viewpoint of those engaged in any one particular field.

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Drastic

SELLING a safety program often requires ingenuity. In a munitions plant during World War II, women refused to wear safety goggles in grinding operations. It was sheer vanity, but nothing would change their minds. Finally, a safety engineer was called in. He picked out the ringleader of the anti-goggle crusade, called her over, and held out his right hand. "Here's something you'll be needing soon," he said. The girl looked at the object he had dropped into her hand and fainted. It was a glass eye, blue to match her own. The anti-goggle crusade evaporated.

—Adapted from "Danger Detectives," by LAWRENCE LADER, in *Coronet*, December, 1953.

Lead and Lead Poisoning in Early America

—LEAD COMPOUNDS—

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This is the fifth of a series of nine items, the totality of which constitutes a substantial history of lead and lead poisoning in early America. The remaining items will appear in consecutive issues of this Journal. DR. MCCORD *is Consultant, Institute of Industrial Health, University of Michigan, Ann Arbor.*

LEAD COMPOUNDS were unimportant to the early Colonist. In truth, he had little knowledge of them. Medically he had a misplaced faith in the curative powers of lead under the guidance of physicians. Later the aristocracy leaned heavily upon lead in cosmetics. The Colonists were unconcerned in paints, and in general had little eye for artificial beauty. Their homes indicated their poverty and the struggle to keep alive. Timber was in abundance, so there was no need to seek wood preservation. Truly, the entire governing spirit in some of the colonies tabooed all articles of adornment or luxury; all such menaced the morals of the community. The perfect example may be found in the plight of the Reverend Thomas Allen, of Charlestown, Massachusetts, who was called before his church officials in 1639 and charged with having paint on his dwelling. That gentleman of the cloth escaped further censure by proving that the offending coat of paint, which he himself condemned, had been applied by a former occupant and was there when he took possession of the house.

The first church in Boston which burned in 1711 was never painted inside or out, although in Pennsylvania during the 1600's many houses were painted, the interior as well as the exterior. A census of artisans of Massachusetts made in 1670 failed to list a single painter. Paints for sale were first mentioned in Boston in 1714 but these were imported. All considered and apart from medicinal usage, lead compounds, and particularly the manufacture of such compounds, were little known in early Colonial life.

Lead Compounds in Cosmetics

THE solid cosmetics of ancient womanhood were in part lead compounds—white lead and red lead for the beautification of the women of Rome, Greece, Crete, Egypt, and India. Since such compounds of lead are little absorbable through the undamaged skin, perhaps no frequent damage came about, although the toxic properties of lead were well known to these ancient periods. This fact was not used in manly protest over cosmetics, yet it does appear that males little approved of such facial adornments. In one Athenian comedy, as observed by Will Durant, a lady is reproved:

"If you go out in summer, two streaks of black run from your eyes; perspiration makes a red furrow from your cheeks to your neck; and when your hair touches your face it is blanched by the white lead."

As usual, the women were obdurate as to their cosmetics and this use provided the chief outlet for the then available lead compounds. Xenophon, (BC 434?-355?) through the classicists furnishes this quaint story:

"Ischomachus had a beautiful young wife, who followed the prevailing fashion and rouged and powdered her lovely face, and moreover wore high-heeled shoes to add height to her figure.

" 'Tell me, my dear wife,' said Ischomachus to her one day, 'in which case would you consider me the more worthy of your affection and esteem, if I truly informed you of my estate, or if I pretended to possess more than I really owned, and concealed some things from you, —if I gave you false silver, a wooden chain plated with gold, and purple raiment which would not ret in its hue.'

" 'Oh! don't speak so,' interrupted his wife. 'You could not do such a thing. If you were like that I could not love you.'

" 'Then,' said Ischomachus, 'dear wife, have we not a partnership in our bodies as well as in our possessions?'

" 'Yes,' she replied, 'it is so considered.'

" 'Then,' said Ischomachus, 'would I treat you with the most loving consideration if I smeared my body with minium, and painted under my eyes in order to deceive you; or if I so cared for my body that it should be healthy and strong, and thereby be in truth and by nature painted. Would you prefer, when you pressed your lips to my cheek, to touch my own natural and healthy skin, or a plaster of ceruse and minium?'

" 'Ah!' she cried, 'it would be much more pleasant to touch your skin, and to see you as you really are, and not with powder on your cheeks and paint under your eyes.'

" 'Believe me,' said Ischomachus, 'I like not ceruse nor minium on your dear face.'

"He then explained to her that such arts might possibly decieve a stranger, but could not her husband, as the bath and her tears would soon remove the cosmetic coating. The young wife was quickly persuaded that as every creature in his own natural condition best pleases himself, so man considers the unadorned beauty of woman the most adorned."

White lead was colored by the natural juices of certain plants (beets) and this served as a rouge for heightening the color of the cheeks. So characteristic was this that white lead colored in this manner has proved a common finding in the tombs of Greek and Roman women. All this Pliny condemns, referring to ceruse (cerussa?) as applied to women to whiten the complexion, labeling it a deadly poison. Unyielding women persisted in the practice, as evidenced by Byron:

"Fair virgins blushed upon him, wedded dames
Bloomed also in less transitory hues;
For both commodities dwell by the Thames,
The painting and the painted, —youth, ceruse."

Whether the cosmetic was the cerussa of the Romans or the psimythion of the Greeks, it was still white lead. No chemical preparation known to antiquity has been more accurately or more frequently described. Dioscorides provides full detail for the preparation of powdered white lead. It was employed to eradicate spots and blemishes, for the removal of scars and in eye ointments and hair washes. No supporting testimonials are added and all efficacy may be doubted.

While white lead (albi plumbi) was known in England at least so early as 1274, allusion to cosmetic properties possibly first appears in Chaucer's (1387) Prologue to the Canterbury Tales, in deriding the facial appearance of the Somnour, and in these words:

"Ther nas quik-silver, litarge, ne brimstoon,
Boras, ceruce, ne oille of tartre noon,
Ne oynement that wolde clense and byte,
That him mighte helpen of his whelkes whyte,
Nor of the knobbes sittinge on his chekes."

The prim souls of early New England were little given to face powders, rouge or lipstick. Any wayward dissenter well might have faced ducking in the pools of the Commons by the irate better-doers. The first settlers, a poor and rough lot, sometimes were so dour and strait-laced as to eschew all vanities. A few decades later members of the aristocracy appeared, self-styled gentlemen, and with them came the use of cosmetics (Vail). Long before the settlers the American Indians made use of face and body smearing to frighten their enemies, starting with a grease base. Thus perhaps they were the first to apply a foundation cream. With the coming of the Restoration in England (1660), wigs came into style and with them a much increased use in all cosmetics. The practice swiftly spread to the Colonies and cosmetics became indispensable among the gentry. Their use was accepted as evidence of social position. Contrawise, some Colonies passed laws curtailing the use of cosmetics among the lower classes, indentured servants and young persons. Among the regulations promulgated by the governors of Harvard College in 1636 for student behavior was the proscription, "Long Haire, Locks, Foretops, Curlings, Crispings and Pastings or Powdering of ye Haire."

What were the cosmetics of the period? Powdered egg shells scented with toilet water was one face powder. The hair powder, whether for natural hair or wigs, was wheat flour, pulverized starch, plaster of Paris, scented and tinted to suit the individual or mode. Some lead compounds entered face powders. The "Imperial Royal Cream Wash Ball" was a soap containing rice powder, orris root and white lead. Much of this was imported from Europe, but soon a blending was provided in America consisting of lead compounds, arsenic salts and bismuth. Bismuth was accorded little favor because of its turning brown or grey when exposed to light—even candlelight.

The professional hairdresser first plied his trade about 1715, but by 1750 there were 41 in New York City alone. The well-to-do maintained a servant in their own households serving as hairdressers. The entire ugly picture is reflected in the *National Intelligencer* in a letter from Mrs. Seaton describing the New Year's reception at the White House, January 2, 1814:

"You perhaps will not understand that I allude to the rouge which some of our fashionables had unfortunately laid on with an unsparing hand, and which assimilating with the pearl-powder, dust and perspiration, made them altogether unlovely to soul and to eye."

Of all of this Vail states: "Many of the cosmetics then in use were injurious if not absolutely poisonous . . . . although I have not been able to uncover any factual deaths attributable to this over-indulgence in the colonies, there certainly must have been some which went undetected."

Lead Compounds in Medicine

DISREGARDING the lead bullets, or more accurately the lead balls requisite to gunfire, lead in the form of its compounds was among the earliest of arrivals in America. The earliest exploration of what is now Colombia in South America was started April 6, 1536, with Don Gonzalo Jimenez de Quesada departing from Santa Marta with his land army. German Arciniegas quotes the Friar Pedro Aguado as saying:

"The heavenly constellation was by no means favourable to our men; for, apart from the corrupt airs and vapours which affected the land and caused many diseases and ill health, heavy showers fell which, owing to the peculiar influence of this tropical sky and the exhalations from the earth itself, engendered in their waters a strange kind of worm that propagated in the human flesh without leaving any outward sore or fester. Even he who was soundest of body would grow benumbed and become host to this worm without sensing it. Buried in the flesh, the worm would leave a very small hole in the skin, like a pinprick, through which to breathe, and would grow within, nourished by the fleshy substance, and become as large as those bred in oxen (which are called tumours). These worms

are destroyed by the application of plasters either of diachylon or of turpentine."

Later on he adds that day by day as the party laboriously worked its way up the river, deaths occurred and the bodies of the dead and dying were tossed into the water. A shoal of grateful alligators kept pace with the travelers, thriving upon a diet of obliging Spaniards. In the midst of so much pestilence and disaster, a little lead poisoning surely would have gone unnoticed. The mentioned diachylon was lead oleate. Inorganic lead compounds do not penetrate the unbroken skin, but through perforated and damaged skin such as accompanied the presence of these larvae, presumably of the bot fly, unfailingly some lead must have reached into the bodies.

Over the years it may be believed that lead has been applied in the treatment of almost every disease. Paracelsus (1493-1541), variously styled a fabulous quack and a genuine reformer in medicine, was born during the period of Columbus' explorations in America. Later on alternately he described and denounced the ravages of lead as a source of poisoning, and utilized lead compounds in therapy, thereby perhaps causing some of the disease that he decried. This custom as to therapy reached America.

The early Colonial physicians, sometimes untrained and unskilled, but sometimes representing the best training available in Europe, may not be complimented upon transmitting records accurately describing individual disease cases. They were too busy with epidemics and major disasters. Yet, they did not fail to provide listings of their stores of drugs. Many physicians and later on apothecaries listing their wares almost invariably mentioned red and white lead, "litarge" and diachylon for plasters and lead soaps. A host of physicians near to that period, but not in the Colonies, have described colics produced by external application of plasters or cataplasms in which lead compounds are prime constituents. At a later period, it was a practice to introduce lead into foods such as bread (to whiten) and to beverages such as wine (to sweeten), cider or beer. Colics and palsies were recognized but not associated with the true cause. Such conditions were attributed to "irregularities of life, late hours, hard riding, with exposure to sudden changes of weather" (Hand). By way of treatment use was made of emetics of ipecac followed by opium and gentle laxatives. The wearing of a broad elastic woolen belt was the chief instrument recommended in warding off this disease.

Legge and Goadby, of England, writing of ancient medical practices as to lead, provide a general description applicable to the Colonies:

"Lead was used in the 17th and 18th centuries particularly, and in the earlier part of the 19th, for its action upon the blood. In view of experimental evidence of the action of lead on the tissues, particularly the blood, this empirical use has interest. Salts of lead were found to be haemostatic, and were therefore used for the treatment of ulcers because of the power, notably of lead acetate, of coagulating albuminous tissue. It was also used in the treatment of fevers, where again it is quite possible that the administration of a lead salt, such as an acetate, produced increase in the coagulability of the blood. At the same time spasms of colic and other accidents followed its use.

"There is practically no disease to which the human body is subject which was not treated by lead in some form or another. Lead, with the addition of arsenic, was given for malaria, while its use in phthisis was also common. The present use of diachylon plaster is an instance of the continuous use of a salt of lead medicinally, as also is the lotion of the British Pharmacopoeia containing opium and lead."

Reverting to the matter of the dispensing of lead, this advertisement (circa 1778) is revealing (Gordon):

"TO BE SOLD BY
G. DUYCHINCK,
At Morristown, New Jersey,
DRUGS and MEDICINES,
a compleat assortment, viz.
RHUBARB
Jesuit Bark
. . . . . etc
White Lead
Red Lead
Indian red and litharge
. . . . etc."

Since exact records little are available as to lead poisoning from the medical use of lead in the Colonies, it becomes pertinent to assume what might have occurred in the Colonies in the light of more recent happenings. Dr. Osler states:

"A few cases have followed the retention of lead bullets in gunshot wounds. Given medicinally, lead rarely causes poisoning, but we had in the Johns Hopkins Hospital four cases following the use of lead and opium pills for dysentery, of which cause Miller collected many cases from the literature. It has followed the use of Emplastrum Diachylon to produce abortion, and there is a case reported in an infant from the application of lead-water on the mother's nipples. One grain every three hours for three days, and two grains every three hours for one day, have caused signs of poisoning. A serious outbreak of lead-poisoning occurred in Philadelphia, owing to adulteration of a baking-powder with chromate of lead, used to give a yellow tint to the cakes."

Disavowing any major service to therapy by lead compounds, still it may be recognized that at the present time lead enjoys some favorable reputation. "Lead wash" or "lead water" which is a dilute solution of lead acetate, is a sovereign remedy chiefly among the laity in the treatment of poison ivy dermatitis and occasionally as a soak for sprains. Colloidal lead in a recent period was utilized in the treatment of some cancers. When the threat of lead poisoning was mentioned, sagely the therapist intoned, "What of it if we may cure cancer?" Cancer was not cured, but probably some lead poisoning was added to the total misery. Just what may become the lot of therapy as to lead in this age of radioactive isotopes must be awaited.

The Manufacture and Uses of Lead Compounds

THE motherlands of Europe, and particularly England, discouraged manufacture in the colonies. Then as now, England sought export trade. Manufacturing scarcely got under way prior to the American Revolution and even after that time as to lead compounds, sabotage occurred, but perhaps always without official sanction or condonement.

Long before lead paint became commonplace, need for lead existed in potteries for glazing purposes, although primitive pottery-making races go in for unglazed pottery. Lead in pottery glazes took its toll. The *Pennsylvania Mercury*, February 4, 1785 (Watkins), describes vividly the dangers of lead glazing:

"The best of lead-glazing is esteemed unwholesome by observing people. The mischievous effects of it fall chiefly on the country people, and the poor everywhere. Even when it is firm enough, so as not to scale off, it is yet imperceptibly eaten away by every acid matter: and mixing with the drinks and meats of the people, becomes a slow but sure poison, chiefly affecting the nerves, that enfeeble the constitution, and produce paleness, tremors, gripes, palsies, etc., sometimes to whole families.

"It is wished the Legislature would consider of means for discountenancing the use of lead in glazing earthenware, and encourage the application of the most perfect and wholesome glazing, produced only from Sand and Salts: materials, these everywhere to be collected within these states. A small bounty or exemption on this, might be sufficient to the end. But what if public encouragement was to be given on homemade Stone-Ware, rather than on Earthen-Ware?"

Watkins continues, through her story of Daniel Clark, the potter:

"One of the potter's principal concerns was for his lead supply. Scarcity of materials that had to be bought must have been a major obstacle for the country potter. Clark got his first lead from Major Stark. This was in bars, costing forty-five shillings per hundred weight. In February 1795, he went to Amherst, New Hampshire, for his lead supply, buying enough to glaze two kilns of ware. Bar lead at that time cost fifty-four shillings and red lead fifty. In 1799 he purchased enough for four kilns, but at a cost of $11 per hundred weight. Later purchases he made at Salem, Portsmouth, and Boston. The price of this commodity rose during the war years to twenty-four dollars a hundred pounds. In 1814 bar lead could not be obtained at any price, and the Clarks used lead ore from New Hampshire. A purchase of Litharge for glazing was made by Daniel's son, Daniel, in 1825.

"Clark's boys, Daniel and Peter, born in 1793 and 1794, were able to help in the pottery at an early age. Daniel was often sick. His symptoms of colic or 'rheumatism in stomack' were possibly the result of that common potter's malady—lead poisoning. On several occasions he was incapacitated for months on end."

The quantity of lead used in pottery glazes relatively was stupendous. John West's pottery in Bradford, established in 1767, provides an inventory item in 1781 of "510 lb. of Baar Lead, 10 pounds, 12. shillings o d." The implication is that by that time potters were roasting their own metallic lead to the oxide state. However, it does appear that powdered metallic lead mixed in a clay paste was applied as such to the biscuit. Barber, in his history "Lead Glazed Pottery" observes:

"In America, the glaze, applied in liquid form, consisted of a preparation of red lead, or occasionally of crude ore, mixed with fine clay and water. Dr. Plot, in his 'Staffordshire,' published in 1686, thus describes the process of glazing slip, decorated and 'combed' ware:

" 'After the vessels are painted they Lead them with the sort of Lead Ore they call Smithum, which is the smallest ore of all, beaten into dust, finely sifted, and strewn upon them; which gives them the Gloss, but not the color; all the colors being chiefly given by the variety of slips, except the Motley color, which is produced by the blending of Lead and Manganese, by the workmen called Magnus. But when they have a mind to shew the utmost of their skill in giving their wares the fairer gloss than ordinary, they Lead them then with lead calcined into powder, which they also sift fine and strew upon them as before, which not only gives them a higher gloss, but goes much further too in their work than the lead ore would have done.' "

Respected tradition prompts the belief that the very first manufacturing enterprise in the Colonies antidated 1611 and represented petty pottery and glass manufacturing in the Jamestown colony. In the "Travels" of Captain John Smith referring to the colony at Jamestown is found the passage "the furnaces for glass and pottery are in decay." By 1657 New York listed among its burghers, one Dirick Claesen, the pot-baker, but near that time Essex County, Massachusetts, was something of a potter-making center. One old potter records that his first job as a boy was the collection from the town merchants of the lead foil in which Chinese tea was wrapped. This foil was reduced to lead oxide for glazing purposes. Without reference to pottery, this practice at once raises the question of the possibility of lead poisoning among tea drinkers; yet this method of packaging tea was common in the United States as late as 1890.

This extensive recital as to pottery finds purpose toward two objectives: the first that pottery-making was one of the first manufacturing enterprises of the Colonies and secondly, that lead glazing was universal and the amount applied to any one piece of pottery was enormous. Still further, it appears that those compounds of lead obtained by mere roasting represented a Colonial enterprise. There is opportunity to believe that as a result lead poisoning was commonplace, but exact mention is a rarity.

Pottery-making was not the only outlet for lead oxides made in or brought to the Colonies. In some other portion of the Americas, red lead

paint was common. Percival, writing in 1774 on lead poisoning, includes this item:

"A Physician well known to the public by his useful and ingenious writing informs me, that during his residence in the West Indies, many cases fell under his observation which justify the utmost caution in the use of Lead, and of its preparations. In one of the small Virginia Islands near Tortola, a Gentleman who possessed many slaves, built a spacious house which was covered with shingles, that is, wood cut into the form of tiles, and painted with red lead. The rain that fell upon this roof, was conveyed by pipes into an open cistern of Lead for the use of the family; the individuals of which had been peculiarly incident to violent, and sometimes fatal colics. The Physician very justly attributed this disorder to the Lead carried off, by the rain from the shingles, or corroded by the water in the cistern. And he had afterwards the satisfaction to find, that those who refrained from this water were no longer liable to attacks of the colic."

Treasured by the collectors are the glass objects of early America. Extensively if not exclusively, these early wares were flint or lead glass. Flat glass was scarcely known and all glass was a scarcity and a luxury, running first to beads, bottles and trinkets and only gradually into goblets, vases and cruets. Many Colonists were born, lived and died after a natural life expectancy without ever seeing a single piece of glass. Phillips reports that some glass had a content of lead oxide as high as 92% and consequently as to weight was as heavy as cast iron. The average content of lead in flint glass approximates 30%. Some glassware, not necessarily embodying lead in the original metal mix, still provided a little content in the enamels used for decorative designs painted onto the glass.

There is reason to believe that in the glass works as well as in the pottery, the requisite lead oxide was made on the premises. This is substantiated by an advertisement in the *New-York Gazette* and the *Weekly Mercury*, October 9, 1769:

"GARRIT RAPALJE. —Broken Flint Glass, single or double is wanted, and if brought by any Persons to Garrit Rapalje, shall receive for the same Two Pence per Pound. As it is intended again to be worked up here, at a new Glass-House, it is hoped all Lovers of American Manufacture will encourage what is in their Power, and particularly on this Instance save, collect and send such broken Glass as above directed. N.B. No Duties Here:

"There is also wanted at said Glass-House, a Person that is thoroughly acquainted with the Process of making Red Lead; he will meet with good Encouragement at the said Manufactory."

Laying aside the Jamestown "glass-house" of 1608 and 1620 as of transient existence, it may be said that the Salem County, New Jersey, glass factory established in 1739 by Caspar Wistar may be the first successful flint glass-house of the colonies. The Wistarburg works survived until 1781. Even in 1739 the hard-to-produce window-glass was provided, but the currently treasured specimens run to the decorative. The first gigantic glass plant was the Boston and Sandwich Glass Company founded in 1825. There in its early years, as much as 100,000 pounds of glass were melted every week. In 1887 the Sandwich workers threatened to walk out unless their union conditions were met. The management countered by stating flatly that if they walked out, the plant would never reopen. The workers struck and management kept its promise. No more Sandwich glass was made (Logan).

Angus-Butterworth asserts: "Glasses high in lead are readily attacked by the acid vapours met with in the atmosphere, but the harder soda-lime glasses are more resistent."

Notwithstanding this apparent high solubility of leaded glass, lead poisoning by the users of glass is not commonplace in the lore of lead poisoning; rather the peril is to the glass-maker. Of this, in a modern appraisal by Rosenhain, it has been said:

"A word should perhaps be said here as to methods of handling red lead on account of the injurious effects which the inhalation of lead dust produces upon the workmen exposed to it. For glass-making purposes it is not feasible to adopt the method employed by potters of first 'fritting' the lead and thus rendering it comparatively insoluble and innocuous; even if this were done, the difficulty would only be moved one step further back, and would have to be overcome by those who undertook the preparation of the frit. The right solution of the problem, in the writer's opinion, is to be found in properly preventing the formation of lead dust, or at all events in protecting the workmen from the risk of inhaling it . . . . to avoid any risk of lead dust either directly or indirectly contaminating their food."

The giant of lead poisoning causation long was white lead—lead carbonate—a cause of lead poisoning among its makers, among painters, among children who gnawed painted sills or toys. One cause for the extensive substitution for white lead by lithopone and titanium dioxide paints was lead poisoning too often traced to white lead.

The production of lead oxide is not an exacting task and, as it actually took place, might be consummated in the corner of a small pottery. Not so white lead. That requires elaborate facilities, long periods of time, and the skill of artisans. It is no wonder that white lead production was a johnny-come-lately in America. Credit for the first production of white lead in America accrues to Samuel Wetherill & Sons whose business of chemical manufacturing began in 1777. In the early decades the vended white and red lead was imported. Not until 1804 was white lead produced on the premises. Shortly thereafter the factory was burned, allegedly set aflame by an Englishman who departed for London the day following. By 1809 the factory was rebuilt, notwithstanding dire threats by English white lead agents. They sought to crush the enterprise and went about that objective but failed, since the War of

1812 eliminated British domination and the enterprise flourished. Wetherill & Sons undoubtedly made use of the Dutch process, relying upon horse dung as the source of the necessary heat and carbon dioxide. This enterprising firm made numerous improvements in lead compound manufacture, notably as to white and red lead. The second plant for white lead production likewise was in Philadelphia, and was erected in 1812 by an English national by the name of Smith. Impending war quickly disposed of him, and he was followed by Joseph Richards as the owner. Following the lead of the Wetherills, lead compound plants became common, but Philadelphia remained the center. Tying the pottery and white lead industries together, it may be found that the census of Manufacturers of the United States for 1830 reveals that one New England pottery annually was supplying 10,000 corroding pots to a single plant for the manufacture of white lead.

To some, white lead is an achievement of the moderns. The truth is that none of the several processes of white lead is precisely new. Going back to 300 years B.C., Theophrastus furnishes a rather good description of white lead-making, in these words:

"Lead ingots are placed over vinegar in earthenware vessels. When the lead has thickened, which it does in ten days at the most, the mould-like material is scraped off and the operations are repeated until the lead is all corroded. The scrapings are then beaten in a mortar and boiled for some time, and the portion which settles out is white lead."

Whether white lead is made by the Dutch process, the Carter, or the Chamber method, it is still white lead. As made in America, white lead was no problem as to lead poisoning for the Colonists. The United States as a nation was 15 years old before the first white lead plant appeared. With its arrival there began one of the most vexatious of occupational disease causations. Ways and means for the combating of lead's evil potentialities are known and well applied. Not necessarily is great consideration given to one protective measure offered by George Ireland in 1886. Its quotation terminates this section:

"Persons at work over poisonous substances should talk but little while at work: by so doing they breathe more through the nose. We have in mind a great talker,—a painter,—whose system seemed to be charged with the white lead paint which he applied to small articles upon the bench before him. His room-mates, of a less gossiping nature, escaped seemingly uninjured. The above occurred in a better lighted and ventilated paint room than is ordinarily seen. The physician summoned to this painter quickly diagnosed the trouble as lead poisoning, and stated the cause as readily as though he had been a shop-mate."

Summary

THE early Colonists possessed little familiarity with the compounds of lead. Their scant acquaintance may have been limited to the inclusion of lead as a dangerous member of their physician's drug armamentarium. The lead compounds of the earlier period always were imported from Europe. An early and widespread industry of the Colonies was pottery-making, begun close to 1657. Lead was the common glaze and was introduced lavishly. Lead poisoning among consumers and makers attracted attention. The cosmetics of the period, limited to the use of the gentry, often contained lead with suspected evil consequences. The early glass of America oftentimes was rich in lead—up to 92% of red lead. The makers of such glass, more often than the user, became victims of lead poisoning. White lead, the making of which has been known for at least two millenniums, was first produced in America in 1804. Whether made or imported, white lead has been a source of prolific numbers of instances of lead poisoning, but the early Colonists in the midst of their many tribulations including much lead poisoning, at least escaped lead poisoning in high frequency from white lead. White lead was a latecomer to America.

Growing Demand

INDUSTRIAL hygiene has come a long way since the days when hazardous and disagreeable working environments were considered unavoidable conditions of employment. Occupational health is now synonymous with the well-being of people at work and with efficient production. It is an important factor in greater harmony between employer and employee and in the development and maintenance of human resources which will result in an even higher standard of living for our nation. Each year there is a greater demand for more technical information to meet the health problems in industry, and more and more companies are establishing medical and industrial hygiene departments.

—From "Foundation Facts," by ANDREW FLETCHER, President, St. Joseph Lead Company, at the Eighteenth Annual Meeting, Industrial Hygiene Foundation, Pittsburgh, November 19, 1953.

Group Disability Insurance

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AFTER all the verbiage is stripped away, group disability insurance is a commercial business. Like any other business it is founded upon the profit principle. Should the men in it lose sight of the profit principle or serve it badly, it must inevitably fail.

Group insurance had its beginning in that principle. At the turn of this century, which was preceded by a period of mushrooming, growth and failure of many mutual aid societies, assessment mutuals, and just fake promotions, a mail order merchandising organization began selling life insurance in large volume through its catalogue. Two principles were at stake. The first was the matter of spread of risk. If a sufficient number of people could be enrolled in a relatively short period of time the chances would be good of getting an average sampling of the population. In other words, there would be a large enough number of the healthy and sound to carry the weight of the sick, the halt, and the blind. Secondly, if by mass selling techniques, the merchandising costs could be reduced, the reduced price itself would work to secure a wider acceptance and, therefore, spread of risk. The result would be a profit and the people would be benefited.

The principle worked. Soon men began to develop new methods of mass merchandising. If people could be grouped together through a catalogue, they could be grouped together in many other ways. The ingenuity of men led to regulation by law. The first laws were aimed at eliminating fictitious groups. The principle of the spread of the risk could not be perpetuated in a group that had no common bond, other than the mass purchase of insurance. Thus, law guided the development of group insurance through employment. Through the first 20 years it was merchandised primarily as an aid to good industrial relations. Through it the employer could provide a modest amount of protection at relatively small cost. Since the benefit was payable at a time when death or sickness brought emotional and often financial upheavals to his workmen, the benefits yielded that most valuable of all business assets, good will. Group insurance for the employer became a good business investment, a tool to aid in making a profit.

Then came the depression of the early thirties. The social revolution was born, which under the name of liberalism has been sporadically, incompletely, and formlessly inching its tentacles over this nation for two decades. It brought into government employment a minority of employees in strategic jobs who were skillful in subverting policy to serve ends foreign to American business principles. They are to be found in the departments and agencies affecting economic and social activities. There are economists, information specialists, writers, personnel experts, political and social science experts. They are not in the top jobs, but influence directly the political appointees who must rely upon them to operate their own jobs.

This minority seem to possess endless energy for its crusade: that government should be expanded; that all business is evil; that public ownership is better than private enterprise; that profits are sinful; that public welfare is superior to private charity; that regulatory agencies should have more power, and the elected representatives in government and the courts should have less. They are all vocal about the need for trained, impersonal and non-political career employees, whose jobs must be held sacred under civil service status. They have but one objective, regardless of which party is in power, and that is government ownership of the means of production. From this source comes much of the inspiration and propaganda for socialized medicine, which is called an insurance plan.

The thirties saw the birth of hospitalization insurance as we know it today. Hospitals, which in general had never operated on a financially solvent basis, found themselves with whole wings of empty beds, their deficits mounting rapidly, and their angels upon whom they relied to write off these deficits, themselves in the breadlines.

Here again, the group insurance principle came to the fore. If a large number of the people in a given area could pay a small amount of money into a fund, the people participating in the fund could have hospital care. Even if this fund did not pay its full share of the cost of the hospital, it would prevent the tremendous loss from empty beds.

Scheme followed scheme in various communities. Some were good, others bad. Out of the ensuing chaos came the Blue Cross. The American Hospital Association laid down some definite rules. Among them were that the hospital plan must be a local community project; must have approval of the local hospitals; must provide hospital service and not a cash indemnity; must have a premium sufficient to pay the costs of the hospitals, and must be a non-profit corporation. Any plan which conformed to these rules received permission to display the Blue Cross insignia. By 1934 the insurance industry began writing some hospitalization.

In 1936 the insurance industry began to do some thinking about surgical expense insurance. Often the cost of surgery was higher than the cost of hospital care. A schedule of surgical fees was developed. There is, of course, no such thing as a good surgical schedule. Even if it is drawn up by a group of physicians, it will be perfect for the man doing general surgery, and even specialists will approve it for all items, except for their own specialty. Many employers added surgical expense coverage to their welfare programs. In general, the medical people approved.

Then came the war years. Prices were regulated, wages were regulated, profits were regulated. Employee welfare benefit plans were considered a legitimate business expense, and, at the same time,

Presented at a Symposium at Harvard School of Public Health, April 4, 1953.

benefits were not considered income for the employee. Insurance programs took their place with wages in collective bargaining. While before the war most such plans had been paid for jointly by the employer and the employee, the conditions of wartime employment brought about thousands of plans, specified as to extent and benefits in the labor agreement, to be paid by the employer as a condition of employment.

The war also brought with it some new forms of group protection. "In-hospital medical benefits" was one. The theory behind it was that since the surgeon got paid for surgery why not pay the physician for a non-surgical hospital case? A new form was also developed under which a small amount was payable for office calls and home calls of the physician.

THE socializers played a minor role during the war. Jobs were plentiful, long hours of work brought high wages, while our war economy produced little to buy. But the minute the war was over things got started again. The Federal government had required that states charging employees for unemployment protection must deposit the unused portion of such employee contributions with the Federal government. After the war a law was passed permitting the states to withdraw this money for the purposes of setting up employee disability benefit plans. Rhode Island led the parade. It established a monopolistic State Fund, closed the door to private enterprise, and proceeded to make the income of a disabled employee the affair of the state. California followed. Instead of a monopolistic State Fund it set itself up as a competitor to the insurance industry with its own fund making all the rules. Competition, of course, is a bit doubtful if one competitor makes all the rules. The insurance companies may write the coverage if the benefits are more liberal than provided by the state. The price that can be obtained, however, for such better coverage is seldom more than what the state charges. Hence, the question is merely one of time when California, like Rhode Island, will be assuming exclusive responsibility for disabled employees in the state.

Under the California law, the employer does not pay any part of the cost unless he is obligated to do so by union contract on an over-all employee program. He, therefore, has no basic business interest in the plan other than to comply with the law by deducting the required contribution from the employee's salary. Again the disability of the employee becomes the affair of the state.

The third state to adopt compulsory legislation was New Jersey. Under the New Jersey law the principle was established that the employers' financial interest in the program is a most valuable asset. The insurance industry was permitted to participate in the program on the same basis as the State Fund. A merit rating system was set up under which the cost of the program to the individual employer would bear some relationship to his individual losses. Thus, an incentive was created for both the employers and the employees to engage in practices that would tend to improve their health.

New York State was the first to inaugurate a compulsory disability insurance plan without such Federal funds. The New York law was enacted to tie in with the workmen's compensation law. It is administered by the Workmen's Compensation Board. The insurance industry is free to compete on a competitive basis with the State Fund. The law does not specifically state that the employer is liable for disabled employees as in the case of workmen's compensation, but the law is so formulated that the profits of the owner are directly involved with the state of health of his employees.

Practically every other state in the country has concerned itself with the problem of similar laws. Many states have established study commissions to analyze developments under the four different types of law now in existence. No doubt, present unsettled world affairs, the repeated crises in government, the tremendous increases in costs of operating local and state governments, and inflation have lessened the enthusiasm for embarking on still other schemes of state welfare. There can be no doubt, however, that further laws will be enacted.

EARLY in 1950 a movement was created in the insurance industry, in which we had no small part, to try to find a means to take care of the costs of major illnesses. The usual basic group insurance plans including benefits for loss of income, hospital expense insurance, surgical expense insurance, and medical expense insurance for non-surgical cases, took care of many of the ordinary medical costs. In serious illnesses, after these benefits were exhausted, the costs could bring about financial ruin of the patient. A plan was developed under which there would be a deductible of a specific amount, for example, $300 or $500, after which the insurance company would pay 75% of the remainder of the cost until the insurance plan had paid to the individual a maximum of $5,000 for any one cause. This form of insurance is now in its development stage.

The publicity accompanying this development has not been without its enthusiasts who hail it as the answer to the cost of medical care. I cannot share this enthusiasm. Without controls, this plan can develop into a system under which medical practitioners merely receive higher fees for services without increasing the quality of medical care.

The great amount of publicity given to medical care insurance has steadily made the people of the country more conscious of this type of protection. Approximately 70% of the population are covered with some form of health insurance. Hospitalization insurance has become a household word in the vocabulary of almost every family. To a high degree, the emphasis on hospitalization is a bad situation, in that the foundation of family life does not rest upon the ability of the family to provide its members with hospital care. The foundation of family life in this country is contingent upon a reasonable continuity of income. There is not much consolation to the workman lying disabled in a hospital from the realization that his hospital bill will be paid by insurance, if his dependents have no income during his period of sickness, and must seek charity to get bread to eat. If there must be charity, it is better to have the workman in the hospital seek charity for payment of his hospital bill, than have his family seek charity for food, rent and clothing.

In my opinion, then, our basic need, at present, is not primarily to find an answer to the cost of medical services for the individual. Without provisions for income, we destroy the very foundation upon which the solution to the cost of medical care must rest. Continuity of income, however, is tied in with our whole economic structure. Basic to it is the creation of good business environment by government under which individual initiative can prosper.

THE entire problem of the cost of medical care has been affected in a major way by three basic factors: (1) the effect of inflation; (2) the social consciousness produced by "full payment" hospital

insurance; and (3) the changing concepts of the practice of medicine under "full payment" hospital insurance.

The effect of inflation on hospitalization cannot be properly understood unless the analysis is tied in with the effect of hospital expense insurance on medical practices. Before the advent of hospital expense insurance, the concept of a voluntary hospital as a charitable institution took precedence over the concept of a hospital as a business institution. A large segment of the voluntary hospitals were staffed with people who, through religious motives, devoted their lives to the care of the sick. The rewards of these people for their services were not measured in terms of dollars and cents. The development of new techniques through the use of machines was not nearly as great in the first 30 years of this century, nor were the machines as expensive as they are at present. The admittance procedures of the hospitals then were based upon the factor of the need and the hospital's ability to accept charity patients. Hospitals prided themselves on the number of charity cases they were able to care for because through such charity practices they built up a tremendous appeal to motivate their angels to write off deficits at the end of the year. Hospitals located in the low income areas of our cities were the special objects of charity and financial support from those individuals who united themselves with the hospitals through a desire to do good by assisting in the support and maintenance of the hospitals.

With the advent of much hospital expense insurance, admittance practices were changed. Cases, other than the severest emergencies, were turned away from the hospital doors until the cash had been deposited on the line in advance. With a high percentage of the people receiving or having hospital expense insurance, the hospitals changed from the status of charitable institutions to financial institutions. The angels who wrote off deficits had their surpluses drained off by taxes. Voluntary hospitals obtained financial assistance through local community funds. Their charity cases could be analyzed by community fund people. Some hospitals adopted a quota basis as to the number of charity cases they would accept. Hospital care has thus become for most people a question of either hospital expense insurance or cash on the line. With the development of hospitals as financial institutions, wages had to be paid comparable to those paid in other types of industry. Thus, the cost of help increased tremendously year after year.

The much publicized admittance practices of the hospitals, and experiences of individuals in attempting to meet hospital admittance requirements, brought about a fear on the part of the people that they better not be caught needing hospital care without having either cash available or insurance protection to provide the cash. With the entrance of the insurance industry into the hospitalization business, hospital admittance in many hospitals became more stringent. Some hospitals refused to accept insurance contracts other than the local service contract in lieu of cash.

The local service contract hospitalization people developed a formula under which they did not pay to the individual hospital the published charges for the services rendered to a patient, but rather paid an average amount to the hospital for each subscriber admitted without regard to the services rendered to that individual. These payments to the hospital were based upon an average per diem expense of operating the hospital. The per diem expense was usually established at the end of each year on the basis of the cost analysis of the past year's performance. In a period in which inflation was increasing rapidly, the per diem cost, based upon past experience often became inadequate shortly after it was agreed upon and substantially inadequate by the end of the year. With about 50% of all the patients in the hospitals getting hospital service under such associations, this system brought about repeated financial crises for both the associations and the hospitals. This resulted in a series of increases in rates. Since such increases in rates were not palatable to the public, there was constant pressure to increase benefits as well as rates. With increases in benefits, the people began to feel, and in many cases were encouraged to believe, that their hospital contracts provided for payment in full of all services rendered by the hospitals. Newspaper advertisements were used, portraying an expensive hospital bill with large lettering stamped on it, "Paid in Full."

With the payment of full hospital costs the doctors began practicing medicine accordingly. Since costs were no concern to their patient, there was no reason whatsoever why any patient should not have the best and the most of everything. Diagnostic work in the hospitals increased to tremendous proportions. X-ray, laboratories, and other therapeutic devices were used without limitation. This change in the practice of medicine increased operating costs of the hospitals. It had no effect upon the hospitalization association because it paid merely a flat rate regardless of service. It did not hurt the physician either because the patient was delighted with all the services he received. His doctor had done the best for him.

Hospitals, therefore, had to increase their charges still further. They were hesitant to increase their board and room charges beyond the general level of the hospitals in the area. Because the board and room charges were substantially affected by the cost of food and help, the published prices seldom carried the full cost for board and room service. Thus, the unpublished prices for the ancillary services such as drugs, dressings, laboratory analyses, x-rays and other therapeutic services were increased often to 200, 300 and 400% of their actual cost. This increase was paid by the cash-paying patients of the hospitals and the patients who were insured under an insurance policy which provided a substantial amount of money for the payment of these services. The hospitals thus offset the deficits in the board and room charges by the profit made on ancillary services for the cash-paying patients.

Prices continued to climb. Hospitalization associations found themselves in a position in which they could not further expand coverage. They already were paying in full. Many of them now have departed from their basic principle of service; and, even though practically all are still paying the hospitals on a per diem basis, regardless of service rendered, they do place a limitation upon the amount the individual is allowed per day for board and room. Thus, the board and room benefits have become an indemnity while the ancillary service portion of the coverage remains a service contract. This change brought about an incentive on the part of the hospitals to increase their board and room rates to a level where these rates would support the cost of the board and room services. With the prices so increased, they are able to break even on ancillary services, and by having the cash-paying customer pay the full inflated price, their need to call on angels

or charity or the community fund at the end of the year has been lessened.

The experience, however, of people going to the hospital and having the bill paid in full has had its effect. A person with a respiratory infection who would be required to pay $5 or $6 per day for hospital care would probably not resort to hospital care. With full payment of hospital care, however, why stay at home and suffer?

OUR young doctors just getting into practices have had little or no training in home care. The tremendous requirements placed upon a young man to become a qualified physician, turn his brain into a turbulent machine incapable of peaceful quiet consideration of individual needs. He thinks in words foreign to the average vocabulary. His techniques are geared to the objective destruction of germs. He is restless to the point where it is difficult for him to enjoy contact with people other than medical men. His entire life has become centered in laboratories and hospitals. It usually takes a number of years after graduation to become reoriented to the point that he is able to recognize another human being as something more than just a body with physical and chemical reactions. In the hospitals, laboratories and clinics he feels at home. Until he feels at home, he cannot give the patient that feeling of reassurance which is the foundation upon which he must ultimately effect a cure. Thus, the younger physician leans upon hospital facilities. Since the bills will all be paid anyhow, he encourages people to use the hospital to the utmost degree. This has become such a phenomenon that the degree of hospitalization in a given area can be measured almost in a ratio to the percentage of young doctors in the community. The young doctor's car is often parked more hours in front of the hospital than it is in front of his office or the homes of patients. In fact, his office hours become a recruiting station for his major work in the hospitals.

So the hospitals are continuously full to overflowing. Patients are being sent away. In some areas the hospitals have started courses in which people learn how to take care of the sick so that the hospitals can discharge patients earlier for home care and have room for emergency cases. Even the normal procedure of childbirth has undergone a complete metamorphosis. Fifteen years ago, it was considered a crime against humanity to discharge a maternity case from the hospital in less than 10 days. The specialists gave their patients even better treatment. With them it required 14 days. Today any normal delivery case not pushed out of the hospital in six days, and, in some hospitals, less, is considered a failure of medicine. With the birth-rate up and practically all maternity cases going to the hospital, the maternity ward has much of the qualities of a production line. Medicine has accommodated itself to the thinking of the people.

THIS increase in the use of hospital facilities has been a source of never-ending wizardry for the politicians. When government insurance failed to obtain the assent of the people, the clever people in government made capital out of the shortage of hospital beds and offered to communities substantial financial aid in the building of hospitals. Thus, if the community raised a certain amount of money and the state added to it, the Federal government would contribute one-half. I have never known of any kind of institution where the man who owned one-half did not ultimately dictate the policies. In small communities in the country, hospitals are being built. With only one or two doctors in the area they are given office space in the hospitals. Their objective is two-fold. First, to provide health facilities for the community and, secondly, to keep the hospital beds full since empty beds create deficits. There are instances of whole families being admitted to the hospital on one day. There are cases of four or five children being admitted to the hospital on a weekend to be cared for while the parents go on a trip. There are cases of employees claiming parentage for neighbor's children so they can be taken care of in the hospital; all this with the knowledge of the doctor.

The only resistance to hospital confinement now comes from the patient. If he is able to be up and about why be confined in a hospital. One large hospital has remedied this too. Patients leave the hospital in the afternoon, go to movies and on shopping trips and return in time for meals. If the entire bill can be paid in the hospital, why incur any medical expense?

The medical expense incurred in small amounts for medical care on the part of a family can, in the long run, be a substantial amount. The days are gone when a person not feeling well can go to a doctor's office and for $2 receive medical attention and medication. Today, if you go to a physician's office, the charge usually runs from $3 on up but, instead of the medication, the patient gets a prescription which, because of the new drugs, will run anywhere from $4 to $10 or more. Thus, a cold or influenza or grippe or, today, the virus, which used to cost $2 to treat, now costs $7 to $10. A physician's call in the home normally runs from $5 up. This, plus a prescription which costs $4 or $5, may run the total bill to $10 or $15. Since one member of the family usually catches the virus from another member of the family, a series of virus cases in the home can cost a family of five as much as $45 or $50 for medical care. When you consider that, for many families, $45 or $50 represents approximately 75% of one week's income, this cost of medical care becomes a burden which people resent, not because they have any desire to avoid payment, but because they cannot see why, if the total hospital bill can be paid, all medical bills can't be paid. Unless this problem can be solved, the pressure for governmentally controlled medicine will become so great that it cannot be resisted.

From the experience of the country in the evolution of medical practice in the hospitals, it is becoming evident that our economy cannot support such luxury any more than it can provide every person with a Cadillac. Contrary to the popular concept, the progress of science has not made the cost of medical care less expensive. Life has been prolonged through science. But by prolonging life, it has increased the period during which a person requires medical care. Again, the need for medical care increases as the age increases, so that, by prolonging life, we actually increase the cost of medical care. This is an arithmetical fact. We do not criticize the desirability of prolonging life. However, the economic fact remains.

WE SPEND billions of dollars each year taking care of the sick. Only a small dribble of that amount is spent in keeping people healthy. Cure is both dramatic and newsworthy. Prevention is tremendously routine and uninteresting. Any discussion of prevention usually conjures up in people's minds the idea that through control of generic causes and rules of

living, humanity can arrive at a state where there is no illness. The control of causes has been accepted by the medical profession as a legitimate medical pursuit. Its primary function, however, as presently carried out, is in governmental public health agencies who seek to eliminate causes of epidemics. But health is not so simple a matter. Health is as much mind as it is body. This phenomenon is best illustrated by the fact that one person will stay in bed all day if he happens to sneeze when the alarm clock rings, while the other person will be seen attempting to work with a severe arthritic pain. Yet there has been a major conflict in the economics of medicine, in that, if the person attempting to work with an arthritic pain is given extended medical treatment in the plant, this treatment becomes a violation of medical ethics. This sick man is supposed to be told that he should go see his physician. Thus, the man with arthritis, who is trying to work, incurs an expense for treatment which he may or may not be able to afford; while the man with the sniffles gets a leisurely day off and, even though it might be very well for him to see a physician, he seeks refuge in home remedies.

Preventive medicine which deals only with generic causes will not solve the problem of the cost of medical care. Disease is a personal thing. As a rule, major illness manifests itself first in minor conditions. Minor conditions by the thousands are being neglected because the individual measures his health in terms of dollars. He must live by those terms. Minor conditions are often borne in silence by the workman while at work. He has suspicions of something wrong. He may confide his suspicions sometimes to members of his family or more often to his associates at work. Until those conditions are made known by him either through personal pain or through fear engendered by something he may have read or heard, he will consider these conditions as one of the routine burdens inherent in the process of living.

This, then, as I see it, is the hope for the future. If industry can find in a healthy workman the means to a greater creation of wealth which carries with it, under reasonable principles of social justice, a benefit from the profits for both the employer and the employee, the maintenance of health will become as important in industry as the maintenance of machinery. Since in production 60% to 80% of the cost results from the application of human brains, human hands and a willing spirit, the maintenance of health in industry becomes the most vital factor in industrial management. Unfortunately, this basic principle has only begun to be examined at the present time because we have all been so enthralled with the new mechanical monsters created by inventive minds. But prevention must deal with the individual. Effective treatment must be given for minor conditions.

Proper treatment of minor conditions calls for tremendous genius in diagnosis. Diagnosis, however, of minor conditions is becoming a lost art, because modern medicine has to such a high degree abandoned the consideration of a human being as something infinitely greater than a combination of chemical elements, and sought refuge in test tubes and electrical devices to provide an answer. Often, the answer for the patient is more properly a directive to a different mode of personal living or thinking. No machine can give such treatment, nor is hospital confinement an answer. If, in industry, people can be persuaded to make known their problems of personal health to an industrial physician, knowing that they will receive both care for minor conditions and guidance for major conditions, it will become profitable for them to disclose their health problems. The remedy of the minor conditions will help prevent future serious conditions. The frequency of serious illness will be minimized and the over-all cost of medical care reduced. Unless this can be accomplished, the American economy will not be able to support the octopus of medical expense which is now expanding.

In no way do I wish to imply that I feel general practice of medicine should be abandoned. I do, however, believe that the educational demands made upon young men striving to become physicians are driving them out of general practice. The long years they are required to spend in pursuits of their own science to the exclusion of all other elements of knowledge, the tremendous quantity of factual data which they are required to maintain at their finger tips, place them in a position in which general practice is incompatible with their personal happiness. In general practice, they are required to forget a considerable quantity of the materials they were forced to accumulate. They are thrown into a stream of human frailty with which they have had no experience or training. Hence, general practice by many is used merely as a means to further specialization. As I see it, hope for the future will arise when medical men experienced in human frailty and thoroughly steeped in the challenge of general practice can be found wending their way into the industries of this country rather than into the hospitals of this country. If the science of preventive medicine can achieve this effect, it will have paved the way for a type of modern medicine which the people can afford and our country needs. If, on the other hand, they continue to gravitate to hospitals and into specialization, they themselves must ultimately become the servants of the government instead of the servants of the people, and they will punch time clocks in the hospitals which will be run by Federal bureaucrats as health centers or pest houses. It is time to come out from behind the frustrating recitation of statistics, and face life as it exists today. Statistics are merely the history of yesterday. The people of yesterday are dead.

Preventive medicine must tell us individually, at our place of work, what we individually need to do about our personal health today in order to be able to do a better job tomorrow.

Still To Be Learned

THE most important lessons still to be learned by management in the application of human relations are: (1) Never forget that the first syllable of management is man. (2) Man is not a machine.

—*Pittsburgh Press*, November 20, 1953.

President's Page

WITHIN recent months, certain further developments have occurred in connection with efforts to establish an American Board of Occupational Medicine. Space limitations prevent a complete review of the subject from 1943 when initial application was made for specialty board status. However the reader is referred to the President's Page in the January, 1952, issue of this Journal wherein Dr. Kammer outlined the progress in this respect between 1943 and 1952.

During the past five years, there have been other developments that have a direct bearing on the present status. In 1948 the American Board of Preventive Medicine and Public Health was activated. Shortly thereafter the feeling was prevalent in some quarters that this was the logical specialty board under which the physician in industry should obtain certification. The physicians in industry believed this to be an erroneous concept, in that occupational medicine is a specialty substantially unrelated to public health. Efforts were continued toward the establishment of an independent American Board of Occupational Medicine.

Meanwhile physicians engaged in the practice of aviation medicine also had made application for independent specialty board status. In considering their application, the AMA Council on Medical Education and Hospitals and the Advisory Board for Medical Specialties were of the opinion that aviation medicine fell within the scope of preventive medicine. It was recommended that the aviation group communicate with the American Board of Preventive Medicine and Public Health regarding the possibility of affiliate board status. As a result, the American Board of Preventive Medicine and Public Health in 1951 amended its charter, constitution and by-laws to delete the words "Public Health" from its title. It thus became and now exists as the American Board of Preventive Medicine. With this modification the Board of Aviation Medicine was established as an affiliate of the American Board of Preventive Medicine. Certificants in both fields now are certified by the American Board of Preventive Medicine but their certificates certify special competence either in the field of public health or aviation medicine as the case may be. The American Board of Preventive Medicine also may certify, if it seems appropriate, in any other subdivision that is considered to fall within the broad field of preventive medicine.

On July 18, 1953, the Interim Board of Occupational Medicine met at Chicago. Dr. Leveroos, representing the AMA Council on Medical Education and Hospitals, attended this meeting and advised the Interim Board members that the possibility of an independent board in the foreseeable future was remote. It was indicated that any approach to certification in occupational medicine should be made through one of the existing specialty boards, the Council apparently being opposed to the establishment of further independent specialty boards of any type.

Accordingly, on November 7, 1953, the Interim Board members held an exploratory conference in New York with representatives of the American Board of Preventive Medicine. As a result, it appears that application for establishment of a Board of Occupational Medicine as an affiliate to the American Board of Preventive Medicine, probably would receive favorable consideration from all official quarters. Under such an arrangement, the Board of Occupational Medicine would have considerable autonomy. It would elaborate its own training program, subject to ratification by the Board. The program would be required to include two academic years followed by a year of field training. It would have representation on the Board in proportion to the number of certifications from its own group. It would develop its own Charter Group. A candidate from the field of Occupational Medicine, however, would be certified under the American Board of Preventive Medicine, but his certificate would certify "special competence in Occupational Medicine." The experience with aviation medicine appears to have provided a workable pattern for affiliation by other groups having basic interest in preventive medicine.

Whereas prior to these developments, physicians interested in occupational medicine were almost unanimously opposed to anything other than an independent specialty board, a large segment of opinion now seems to have shifted to the favoring of affiliate board status. It should be recorded promptly however that this shift of opinion is by no means unanimous. Many interested physicians still believe that this would be an undesirable and compromising solution. However others believe that if an affiliate board is working satisfactorily for the aviation group, it also could operate satisfactorily in occupational medicine, and that an affiliate board is better than no board.

It seems the consensus of physicians in general that the subject of specializing and specialty certification has been overdone. In such a climate, the possibility of an independent American Board of Occupational Medicine appears remote. However the prospects of a Board of Occupational Medicine affiliated with the American Board of Preventive Medicine seem most favorable.

George F. Wilkins M.D.

Association News

Conference Officials 1954

Chicago, and the "Best Industrial Health Conference Ever!" These Officers and Committee Chairmen are planning it; and the indications are that a record number of Industrial Physicians, Industrial Hygienists, and Industrial Nurses will attend it. The place: Hotel Sherman, Chicago. The dates: April 24-30.

Robert C. Page
Conference General Chairman
President-Elect IMA

E. J. Schowalter
Convention Chairman
IMA

T. R. Van Dellen
Co-Chairman IMA
Scientific Program

R. E. Eckardt
Co-Chairman IMA
Scientific Program

Edward C. Holmblad
Managing Director
Conference

Stephen G. Halos
Director of Exhibits
Conference

Henry Field Smyth, Jr.
President
AIHA

Joseph Shilen
President
ACGIH

Sara P. Wagner
President
AAIN

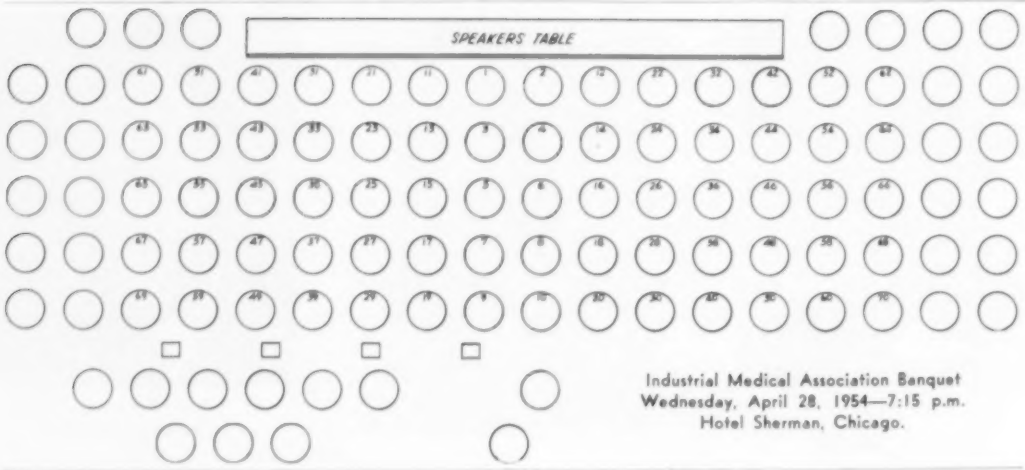
Ernest G. Smith
President
AAID

Ethel Burgeson
Convention Chairman
AAIN

Warren A. Cook
Convention Co-Chairman
AIHA

Charles Wyman
Convention Co-Chairman
AIHA

Grant MacKenzie
Convention Chairman
AAID



Industrial Medical Association Banquet
Wednesday, April 28, 1954—7:15 p.m.
Hotel Sherman, Chicago.

Association News

Banquet Reservations

GLENN GARDINER, M.D., Chairman of the Banquet Committee for the 1954 INDUSTRIAL HEALTH CONFERENCE, at Hotel Sherman, Chicago, in April, asks that the following information regarding the IMA Banquet, Wednesday evening, April 28, be brought to the notice of all who are planning to attend the Conference: Reservations may be made in advance. The Banquet tables are to be arranged according to the chart on this page. There are eight places to each table, and all places will be reserved. The cost is $7.00 per ticket. The time is 7:15 P.M. The place is the Grand Ballroom of the Hotel Sherman. Table places are to be assigned in order of receipt of request, and all requests should be accompanied by remittance. The advance ticket sale closes April 12. Thereafter tickets may be purchased at the Registration Desk at any time from 9 A.M., Monday, April 26, to 12 NOON, April 28. Requests for reservations by table numbers, together with remittances for the number of tickets required, may be sent to DR. H. GLENN GARDINER, Chairman, IMA Banquet Committee, Room 1300, 28 East Jackson Boulevard, Chicago 4, Illinois.

A Facet of Medical Education

NATIONAL Fund for Medical Education, established to bring about closer relations between the nation's 79 medical schools and industrial corporations, has a Medical Advisory Committee, through which it seeks to interpret to industry the needs of medical education and to medical schools the needs of industrial medicine. Dr. Earl C. Bonnett, Medical Director, Metropolitan Life, and Dr. Robert Collier Page, Medical Director, Standard Oil (New Jersey) are co-chairmen. Under the sponsorship of this Committee and the AMA Council on Industrial Health, meetings are being held in industrial centers throughout the country. One of these meetings, on December 8, 1953, at Mellon Institute, was a "Conference on Industry and the Medical Schools," at which Industrial Hygiene Foundation was host to 34 industrial Medical Directors and 12 medical school deans from 10 middle-Atlantic states. Among the talks were certain remarks by Dr. Arden S. Turner, of Philadelphia, from which the following is adapted:

AMERICAN business and industry, with American medicine, face a common enemy. The subtle, penetrative influences of alien and subversive philosophies have attacked business and industry on manifold fronts. They threaten us as socialized or political medicine. The mere fact that we have a Republican administration is no guarantee that the threat has ceased. Like the hidden serpent, its poison is the more toxic because it is covert. Let none be fooled by its seeming absence. The American Medical Association fight—our fight in behalf of the American people against socialized and political medicine—is by no means at an end. This is clear if we examine the public mind. We need to know the thoughts of the average fellow, the white collar worker, the industrial employee.

These people, most workers, have three fears—loss of job, catastrophic illness, and death. We deal with the latter two to the greater degree. Yet we

Industrial Physicians identified with the work of the National Fund for Medical Education: (Left to right): Robert C. Page; J. J. Poutas; Earl C. Bonnett; C. Richard Walmer; George F. Wilkins.

have never had the good sense to apply the proper psychology, either individually or by mass project, to allay such fears. We have left our charges open to the inroads of radicalism and political opportunists, who promise the old Robin Hood technique of something for nothing. When such fears assail the worker, especially in these days of high prices, he looks to government for the answers to his problem. This because he has been exposed for two decades to paternalism and promised social securities. Needless to say, the approach is wrong, the reasoning fallacious, and the tendency a definite threat to the quality of medical care in our country and to the traditional time-proved system of competitive enterprise under which all our people have so far advanced. It is an un-American as Moscow.

American business and industry are aware of the threat. They contribute many hundreds of thousands of dollars annually to educational projects which try to stem the tides of un-American thought. If we regard the originators of such thought as mentally ill, and surely they must be, for there is no reason nor loyalty nor judgment in them, we, too, can become a force for great good in preserving a free world. This is a common ground on which American medicine and industry can meet. This is one means, also, of creating the demand for preventive medicine.

The role of the educator is to develop knowledge, skills, and attitudes. In the former two we excel; in the latter there has been some neglect. We may memorize the pH of Amphojel in medical school, but whole hordes of us went out to fight to death against Fascism without being able to define the term. Now we know the Communists, but all too few of us know what their principles are or how the realization of a Soviet America would affect us. Socialized medicine would be a long step toward our own ultimate socialization. Therefore, it behooves our medical schools and our teachers to remember that attitudes are important. Turn out young men of morals, ethics, and idealism and American business will embrace them. The wells of philanthropy will gush, and much that this meeting will have hoped to accomplish in groundwork, will be laid.

THE industrial physician, like the medical educator, has an important sphere of influence in this fight. An alert medical officer, schooled in the difference between right and wrong, and caring about maintaining principles, could detect the social and economic factors in his locale which make for discontent, labor strife, absenteeism, and illnesses. By constructive and intelligent educational programs he could prevent much sickness and results of emotional distress (e.g., even a cursory pre-placement test might have prevented the recent unsavory news at General Electric or Fort Monmouth).

Let me suggest, then, that a team of American business, American medical educators and American industrial physicians look to the product of the future—a better, more loyal industrial physician, with wide influence for the good of his patients, the American employee. Let this be accomplished through a better medical school product, a man well-versed in traditional values of right and wrong, in loyalty to oath, to family, and to homeland—a man of character and culture as well as knowledge and skill—a man of virtue and self-reliance, exemplifying the dignity of the individual as opposed to dependence on the state. It seems to me this is a holy charge. We must meet it and extend this new service to the American people.

The new social responsibilities of the age of physical science make this mission imperative.

Congress on Industrial Health

THE Fourteenth Annual Congress on Industrial Health, sponsored by the Council on Industrial Health of the American Medical Association, takes place February 24-25 at the Brown Hotel, Louisville, Kentucky. The opening general session, on Wednesday morning, February 24, will be devoted largely to a discussion of stress as a socio-medical factor in American life. Participants will offer points of view representing general medical, psychosomatic, and geriatric aspects. The afternoon session will be divided into two sections: Section I, to consider emphysema, with particular attention to industrial implications; Section II to be devoted to keeping well people well. A principal feature of this part of the program will be a discussion of the preventive medical program in the Du Pont Company. Wednesday evening the annual dinner, in company with the Jefferson County Medical Society, will have rehabilitation as the major theme. Thursday morning a group of experts representing industrial medicine, industrial hygiene, industrial nursing, and industrial safety will outline details of an optimal program. The remainder of the day will be given over to discussions of emergency services in the plant, and the integration of the plant program with civil defense activities in the community. A special feature will be the Vicksburg, Mississippi, experience in which industry and medicine proved to be the indispensable disaster team. On February 23, the day preceding the Congress, the Council will hold its Annual Conference with Representatives of the Committees on Industrial Health in the State Medical Societies. A report on "Guiding Principles for the Physician in Industry," now in preparation by a committee, will be presented for discussion and recommendations. Later, attention will be given to specific projects for a state medical society committee. In the evening a testimonial dinner will be given in honor of Drs. Anthony J. Lanza and Clarence D. Selby, retiring members of the Council. While the sessions on Tuesday, February 23, are for special groups only, those on February 24 and 25 are open to all physicians and others interested in industrial health. It is suggested that hotel reservations be made promptly.

New Commissioner

(Article by Geoffrey T. Hellman, used by permission. Copr. 1953, The New Yorker Magazine, Inc.)

DR. LEONARD GREENBURG, Commissioner of the city's most recent Department, that of Air Pollution Control, is a man of sixty-one with a genial smile and a pipe. We called on him the other day in his office on Park Row. The Department was created last year as a continuation—but with more teeth in it—of the old Bureau of Smoke Control of the Department of Housing and Buildings. Like its predecessor, it is the sworn enemy of pollution of the city's atmosphere by smoke, soot, fly ash, dust, gases, fumes, vapors, and odors. Smoke is emission from a chimney, stack, or open fire or from the heating of fuel or refuse. Soot is a dark substance, essentially carbon, resulting from the burning or heating of coal, wood, oil, or other fuel. Fly ash is solid particles resulting from combustion or incomplete com-

The New Yorker, December 12, 1953.

bustion of coal, wood, or other fuels. Dust is air-borne solid particles. Gas is a formless fluid that occupies space and that can be changed to a liquid or solid state only by increased pressure with decreased or controlled temperature or by decreased temperature with increased or controlled pressure. Fumes are air-borne colloidal systems that are formed by chemical reactions or by such processes as combustion, distillation, sublimation, calcination, and condensation. Vapor is any material in a gaseous state that is formed from a substance, usually a liquid, by increase in temperature. An odor is a substance that affects the sense of smell. All this is what the law setting up the Department says. The Department may seal offending equipment, issue warnings, and hale polluters into court. It may recommend fines of up to five hundred dollars, and prison sentences of up to six months. This year, its punitive actions have resulted in fines of over fourteen thousand dollars, including a fifty-dollar one slapped on the Furness Bermuda Line's twenty-two-thousand-ton Queen of Bermuda for inordinate smoking in the harbor. A prison sentence is no joke. Dr. Greenburg is a Manhattan-born son of a china-and-glass importer. He went to Townsend Harris High School and Columbia University School of Mines, Engineering, and Chemistry. He is twice a doctor—a Yale University Graduate School Ph.D. in Public Health, and a Yale University Medical School M.D. He took his M.D. in 1930, after spending fifteen years on subway construction for the New York State Public Service Commission, industrial-engineering staff work for the Winchester Repeating Arms Company in New Haven, and work on industrial hygiene for the United States Public Health Service. The last of these jobs included air-conditioning the Houses of Congress in Washington and a trip to China, Japan, and the Philippines to study ship ventilation and its relation to the spread of an epidemic of cerebro-spinal meningitis. Dr. Greenburg told us that he took the M.D. because occupational diseases are a big factor in the field of industrial hygiene, and that he has never practiced medicine privately. He has been an associate director of the John B. Pierce Laboratory of Hygiene, in New Haven; Health Commissioner of New Haven; and executive director of the Division of Industrial Hygiene and Safety Standards of the New York State Department of Labor. He represented the United States Department of Labor at the International Silicosis Conference in Geneva in 1938, and he is, or has been, chairman of the Industrial Advisory Committee of the National Society for the Prevention of Blindness, a member of the Committee on Pneumoconiosis of the American Public Health Association, and a member of the Committee on Code for Testing Air Cleaning Devices of the American Society of Heating and Ventilating Engineers. He is the co-inventor of the Impinger, a widely used apparatus for sampling aerial dust. He lives on West Seventy-seventh Street, and, with his wife, often visits the Museum of Natural History, of which they are members. He also belongs to the Metropolitan Museum of Art and the Museum of Modern Art. His wife paints; he used to.

Books

DE MORBIS ARTIFICUM, BERNARDINO RAMAZZINI, in Patavino Gymnasio Practicae Medicinae Professoris Primarii Diatriba, Editio Novissima, Accesserunt item nonnullae aliae additiones postliminio dispositae nec non Adalberti Pazzini in Archigymnasio Romano Professoris Opusculum De Vita Scriptisque Eiusdem Auctoris italico sermone redactum, Romae MCMLIII, Ex Typographia Caroli Columbi.

To celebrate the seventieth anniversary of its own foundation the Italian Istituto Nazionale per l'Assicurazione contro gli Infortuni sul Lavoro has issued a new edition of Bernardino Ramazzini's "De Morbis Artificum" of 1705. The Institute has wrought mightily. This is no ordinary book, but is a handsome, limited edition publication, with many indications of handwork and loving concern for one of Italy's most distinguished men of medicine. The major portion represents in facsimile Ramazzini's original work. This is preceded by various listings such as citations of Ramazzini's numerous publications, outstanding publications of others about Ramazzini, and a brief chapter on Ramazzini's life.

This book is tantalizing in that naturally all ancillary material is presented in Italian, while the major text appears in Ramazzini's own Latin. The copy furnished for review is numbered 391, which low number implies a highly limited edition. This book is not to be recommended for all industrial physicians, but it would constitute a major accession for all collectors of Ramazziniana. Inevitably it will find its way into all medical libraries and into all other libraries devoted to the acquisition of superb publications. It is not clear how this book may come into the possession of Ramazzini's devotees, but no such hindrance will deter the true pursuer of Ramazzini lore. Undoubtedly the Institute mentioned will find some way to make this book available to those who refuse to be denied the boon of possession.

Photography

A GUIDE TO MEDICAL AND DENTAL PHOTOGRAPHY: KENNETH S. TYDINGS. The Modern Camera Guide Series, Greenberg, Publisher, New York, 1953, p. 124, $1.95.

Photography is not alone an ever-enlarging and beguiling hobby. In addition, in the sciences it is a precise tool in communication and in recording. The same amount of time, effort and expense will lead to excellent photographs instead of mere mediocre ones. This pocket-sized booklet, and not too expensive, provides the final details of the practical in obtaining high quality photographs in the medical and dental professions.

"Standard" Text

THERAPEUTICS IN INTERNAL MEDICINE: Edited by FRANKLIN A. KYSER, M.D. Paul B. Hoeber, Inc., New York, 1953, pp. 830, 2nd Edition.

Prior to the advent of the sulfa drugs, the antibiotics and the newer hormonal agents, therapy was in the doldrums. Now we are in the midst of a revival in therapy. Industrial medicine long has been characterized as a medical specialty without any therapy. Never was that attitude justified and nowadays less than ever. As one item of proof is this book which contains many sections either precisely directed to occupational medicine or at least applicable in occupational medicine.

By no means is this publication on therapeutics pointed to occupational medicine. In truth, that is but a minor portion of the coverage. This book is general in its application. Being now in its second and enlarged edition, upon this volume may be bestowed the final accolade: It's a "standard" text on therapy.

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ESTABLISHED 1932

Publisher A. D. CLOUD

Volume 23 FEBRUARY, 1954 *Number 2*

Eleventh International Congress on Industrial Medicine

IN THE city of Naples, in Italy, and on the dates of September 13-19, 1954, the Eleventh International Congress on Industrial Medicine convenes. The official U.S. delegation, headed by the distinguished Robert T. Legge, consists of: George H. Gehrmann, M.D.; Leonard Greenburg, M.D.; Alice Hamilton, M.D.; Henry H. Kessler, M.D.; Anthony J. Lanza, M.D.; Robert T. Legge, M.D.; Carey P. McCord, M.D.; Carl M. Peterson, M.D.; William A. Sawyer, M.D.; Royd R. Sayers, M.D.; Clarence D. Selby, M.D.; L. Teleky, M.D.; James G. Townsend, M.D.

By no means is there any implication that any other physician, hygienist, nurse or interested layman would be denied either welcome or opportunity to participate. Apart from the plenary sessions of official delegates there will be no distinguishment among those who attend. No language barriers will arise, since English may be the designated language of the Congress, and, if not, and if the Lisbon sessions set any precedent, through the use of selective language earphones any address during the period of its presentation may be heard in the hearer's choice of several languages.

Occupational health has become international, but industrial physicians, particularly in the United States, seem content with nationalism. The charge that most industrial physicians are characteristically provincial stoutly may be denied, reinforced by recriminations. Without sole reference to occupational health, most industrial physicians of the United States are loyally wedded to their own country, to medicine, and to industrial medicine. The majority of industrial physicians, despite their protestations to the contrary, probably are narrow in their abilities to think and speak as citizens of a total world. They have misapprehensions as to far places, strange languages, unusual foods, unfamiliar money. The truth is that Naples is little more than a day's flight from America. A steamship sailing from a familiar New York dock, 10 or 12 days later will be tied up at a not too dissimilar pier in Naples. After all, traveling with suitable companions is but one's home in motion.

No longer is Naples necessarily Italy's azured pearl, but if Naples itself unhappily now be less esteemed, nearby are Rome, Florence, and the incomparable Venice—all endlessly alluring.

It is easy to agree with Mark Twain that the Creator made Italy from designs by Michelangelo; and not to have seen Italy should saddle any person with inexcusable inferiority.

Smugly too many of us accept the fetters that bind to duties, to habits, and to unwillingness to bestir oneself out of the day's comings and goings. Greater profit possibly may arise from a few days of goings and comings far afield. Go to the International Congress. Go to Naples. Go to Italy. It will be far easier and more pleasant than you know. Nor has this insistence been subsidized a single lira by any travel facility or any Italian Chamber of Commerce.

Plight of Medical Education

THE COST to a university in training a medical student is stupendous! The fees paid in by the student almost are but token payment. These statements apply in equal validity to all professional training and, for that matter, to all trainees. In this period of inflation, universities are major victims. The yields from private en-

dowments erstwhile constituting some degree of sufficiency now are distressingly low. Some increase in taxation funds provided public institutions has been accomplished, but such increases never are in step with increased costs. Well meaning but inadequately informed donors often make gifts for precisely designated purposes. On occasion such gifts add to instead of relieving the difficulty. Readily it may be understood and applauded rather than condoned that some institution finds it necessary immediately to set aside some 40% of any designated gifts in order to apply such funds to the general overhead costs that make possible the application of the designated fund for its specified purpose. It is appalling as to the medical plight to realize that, at the very period of the highest training in medicine that ever has been achieved in the world, the perpetuation of such training is threatened by an inadequacy of funds. It is proving difficult to maintain the *status quo* to say nothing of inability to spread out into new areas of science created by recent advancement.

Industry is fully dependent upon the universities for recruits to its management requirements. While emphasis ever is upon engineering recruitment, the total requirements embrace industrial physicians, of which group never has there been a sufficient number. The status of the physicians in industry and the attitude of industrial management toward industrial medicine continually are in jeopardy when industry finds it necessary to acquire industrial medical personnel merely by the general manager heavily leaning upon his wife's obstetrician as the would-be industrial medical director. All of industry has a stake in education at every level, and notably at the professional level. Of this industry is fully aware, and is willing to make substantial contribution, but all too often it has made funds available only for special projects when the true need is for unearmarked funds for general purposes notably in the field of medical education.

Never discouraging any gifts on the part of industry to education, a committee of American industry serving the "National Fund for Medical Education" unselfishly is going about the task of informing industry of the genuine need for additional funds for medical education and the important fact that general rather than designated funds dominate immediate needs.

Elsewhere in this issue are some remarks on this subject, from a recent Conference on "Industry and the Medical Schools." The generosity and the self-conservation of industry are well in evidence through substantial support. Much that has been accomplished through direct identification with industrial medicine is to the credit of our own Dr. Robert C. Page, one of the Committee's Chairmen.

Double Jeopardy

THE Constitution of the United States through the fifth amendment guarantees to all persons that never shall they be placed in "double jeopardy." The exact language runs: "Nor shall any person be subject for the same offense to be twice put in jeopardy of life or limb."

This means, as is obvious, that as to criminal acts no person legally tried and acquitted by the court, again may be tried for the same offense, even though later developments fully demonstrate guilt. Operating in behalf of the individual, nothing in this provision debars the accused himself from seeking further trials in order that he may establish his innocence.

No such benevolence attends the operation of economic laws. Every manufacturer pays for the provision of a good working environment free from exposures illy serving the health of workers. But not always does he obtain the delivery of the beneficent working situation for which slowly he makes payment. The ravaging work conditions exact payment in terms of poor production, slowed down operations, wasted materials, absenteeism, low morale, high labor turnover, and disloyalty. The price has been paid, but no delivery.

All in time, but not in good time, the manufacturer senses the absence of the praiseworthy environment and sets about the procurement of the protected work condition, and again makes payment in terms of a double indemnity. First, he paid for the devastating work environment and then, belatedly, he pays again for installation of protective equipment. Nor is this all. The second jeopardy now appears. Despite the immediate protection of the tardily introduced devices, a hang-over of the old takes its toll. The damage to health initiated by the earlier years of no protection plagues the manufacturer in the second jeopardy. It is the common experience of physicians and industrial hygienists examining work premises to find the most modern of protective devices, but also to find unmistakable disabilities traceable to the neglected earlier period. Particularly is this true with respect to the slowly developing, but inexorable, dusty lung diseases and notably silicosis. Thus a third payment becomes due. This time the payment is worker compensation.

In one way or another, every manufacturer pays for the highest type of work environment. All too often thrice-over payment is made when only one is requisite. All other payments are made "through the nose." Even bad experience is a powerful teacher, but that sort of education is painfully expensive. All izzat to the foreseeing manufacturers—who avoid the double jeopardy of the neglected work environment.

Fig. 1: "Roentgen examination . . . revealed the ulcer to be very much in evidence."

Fig. 2: In ten weeks "the ulcer niche was no longer in evidence roentgenologically or gastroscopically."

Clinical Evaluation of Pro-Banthine®

CASE REPORT

"M. D., female, aged 48, had a posterior gastrojejunostomy 14 years ago for duodenal ulcer. The patient was fairly well until nine months ago when severe, intractable pains occurred. She was hospitalized and a subtotal gastrectomy was done.

"She remained well for only a few months and was referred to us because of recurrence of very severe pain and marked weight loss. Roentgen study revealed a fairly large ulcer niche on the gastric side of the anastomosis.

"The patient had been on various types of antacids and sedatives without relief from pain. She was given 60 mg. of Pro-Banthine q.i.d. and within 72 hours was able to sleep through the night for the first time in weeks.

"At the end of two weeks of such treatment the patient had absolutely no pain and felt that she had been 'cured.' Roentgen examination at this time revealed the ulcer to be very much in evidence (*Fig. 1*). Much persuasion was necessary to make the patient realize the importance of maintaining her diet and therapy.

"Ten weeks of controlled regulation was necessary before we were satisfied that the ulcer niche was no longer in evidence roentgenologically or gastroscopically (*Fig. 2*).

"She has been maintained on 30 mg. [q. i. d.] of Pro-Banthine for almost five months with no recurrence of symptoms."

Schwartz, I. R.; Lehman, E.; Ostrove, R., and Seibel, J. M.: A Clinical Evaluation of a New Anticholinergic Drug, Pro-Banthine, to be published.

Pro-Banthine (*brand of propantheline bromide*), the new, improved anticholinergic agent, is more potent and, consequently, a smaller dosage is required and side effects are greatly reduced or absent.

Peptic ulcer, gastritis, intestinal hypermotility, pancreatitis, genitourinary spasm and hyperhidrosis respond effectively to Pro-Banthine, orally, combined with dietary regulation and mental relaxation.

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BiSoDol Powder . . . Fast acting, antacid alkalizer . . . Packaged in a 16 oz. wide-mouthed bottle for easy, quick dispensing. BiSoDol® is exceedingly effective in relieving upset stomach, acid-indigestion, "gas," heartburn, sour stomach, fullness, nausea and other forms of distress when caused by excess stomach acidity. $2.00 each.

BiSoDol Mints . . . For greater convenience, BiSoDol is also packaged as mint tablets, 500 to the bottle. BiSoDol Mints are so palatable that they may be taken without water, if desired. $1.70 for 500 tablets.

PETRO-SYLLIUM . . . A mineral oil emulsion for the relief of constipation. Available either plain (blue label) or with phenolphthalein (red label). Petro-Syllium® is pleasant to take, gentle, thorough in effect. Packaged in 16 oz. bottles, $8.80 per dozen.

NEW! SPERTI BIO-DYNE® OINTMENT . . . For the treatment of burns, cuts, abrasions, contains biological substances obtained from yeast and fish liver cells which act in minute quantities directly on injured cells to stimulate their metabolism and proliferation. Minimizes scar formation—promotes rapid healing. Packaged in 15 oz. jars @ $48.00 per dozen. (Minimum shipment—3 jars.) Hospital size—5 lb. jar $15.50 per bottle.

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News, Comment, Opinion

I AM flatly opposed to the socialization of medicine. The great need . . . . can best be met by the initiative of private plans. But it is unfortunately a fact that medical costs are rising and already impose severe hardships on many families. The Federal government can do many things and still avoid the socialization of medicine."

—PRESIDENT EISENHOWER'S "State of the Union" Message.

Medical Care for Pensioners

UNLIMITED medical care for pensioners is provided in contract obtained by a small union, AFL Handbag & Luggage Workers, with New York City employers. Financing is by means of a trust fund.

—*Personnel Executives' Newsletter*, January 15, 1954.

Time Lost

AN ESTIMATED 45,000 persons are absent from work each day throughout the nation due to dental disease. This was reported at a recent conference on industrial programs sponsored by the Council on Dental Health of the American Dental Association. A five-point dental health program in industry, including dental health education, was advocated.

—*Nutrition News*, December, 1953.

Boxing Fatalities

A RECORD number of 21 boxing fatalities in 1953 is recorded by *Ring Magazine* in a copyrighted article in its February issue. The deaths were divided, 11 professional and 10 amateur. There were only two pro deaths in the United States. Dick Miller died after a Worcester, Massachusetts, bout April 21, and Robert Lee (Bobby Donald) after a Miami Beach match August 18. Of the 10 amateur fatalities, six occurred in the United States, including a U.S. airman, a college boy, a golden glover, a reform school inmate, and an AAU boxer. In 1952, there were 17 deaths, a record at that time, according to totals kept by *Ring* since 1930.

—*Detroit News*, January 3, 1954.

State Research

GOVERNOR DEWEY will ask the 1954 Legislature to provide financial backing for a new state research program to determine whether there is a relationship between cigarette smoking and cancer of the lung. State health officials report that Mr. Dewey is alarmed over the mounting toll of such cancer in New York. In the last 30 years the lung cancer death rate for men has risen nearly five-fold, and more persons in the state now die of this disease than of tuberculosis. The new attack on this type of malignancy will be part of a $2,000,000 program for all types of cancer research that the Governor plans to include in his 1954-55 budget. The scientific studies will be made at the Roswell Park Memorial Institute in Buffalo.

—*New York Times*, December 21, 1953.

De Morbis Artificum Diatriba

IN OUR day, one of the first questions a physician asks in visiting a patient is his occupation. It is so routine a question that no one stops to think of the man who first asked it. The amount of research that has been done in the field of industrial medicine and surgery, the many journals that are concerned with this subject, the new techniques and therapies and health-guarding measures that have been devised—all these things have made Ramazzini's Treatise appear outmoded, obsolete, and naive. Nevertheless, the stubborn, old-fashioned 17th-century physician succeeded in producing a medical and literary classic, and it is not amiss to pay tribute to him even in our day.

—*Bull. St. Louis M.S.*, in *Current Medical Digest*, November, 1953.

In Your Mind

DR. ESTABROOKS says that, if you can't relax, nine-tenths of the trouble is in your mind. He tells of a husky friend who was kept awake by drinking coffee after 6:00 o'clock at night. The doctor told his friend to enjoy his coffee at dinner as usual, but to take two pills at 9:00 o'clock and he would practically guarantee him a good night's sleep. The friend followed the prescription, and slept like a log. It is not recorded that the doctor ever did tell his patient that the pills were caffeine pills, each containing about the amount of caffeine that's in two cups of coffee. Having made sure that coffee had nothing to do, physical-

Founders of the counseling service to the medical profession, serving medicine with distinction over half a century.

POSITIONS WANTED

Medical Director: (213) One of leaders in field, administratively and clinically; degrees from leading schools; eminently qualified, toxicology-biostatistical evaluations; 10 years, director and chief, industrial hygiene; several state programs; four years, director, industrial cancer research project; 30 publications, industrial medicine; active national civil defense program; early 40's; outstanding man for large industrial medical program.

Medical Director: (214) Graduate Class "A" school; eight years, successful private general practice; several years, Medical Director, regional plant major steel company; five years, Medical Director, leading company; duties involved complete charge entire program for 70,000 employees in 30 plants; outstanding man, recommended without reservation.

Medical Director: (215) Certified Internist; FACP; past six years, Medical Director, full charge, major company; 40,000 employees; active in industrial medical affairs; one of best qualified directors in industrial medical field.

Staff Physician: (217) 30; Category IV; B.S., Washington Medical School; one year, rotating internship; now in third year residency in medicine; seeks industrial post.

Staff Physician: (217) 30; Category IV; B.S., M.D., Louisiana State Medical; rotating internship, one year; 18 months, successful private general practice; prefers industrial medicine with regular hours; licensed North Carolina, Indiana; 30 days notice.

Staff Physician: (218) 30; B.S.,M.D., Hahnemann Medical College; four years successful private general and surgical practice; one year, industrial staff physician; interested only in industrial medicine in area, Philadelphia to Wilmington, N.J.

POSITIONS OPEN

Medical Director: (76) Important Life Underwriting Company; entire charge; large city; Central.

Medical Director: (77) Regional Plant, Plastic Division, important Chemical Company; opportunity becoming director entire plastic division which includes plants in four areas; Northeast.

Medical Director: (78) Associate; important tool manufacturing company; replace man retiring after long tenure; 6000 employees; four separate plants; excellent facilities; large city university medical center.

Staff Physician: (79) Several required; Atomic Energy Plant operated by major company; assures appointee reasonable degree of security as operations will be permanent; warm section of country.

Staff Physician: (80) Major heavy industrial company; 11,000 employees; care for minor injuries, fractures, amputations; some x-ray; large city; several medical schools; about $9000; 40 hours; five days; East.

Staff Physician: (81) Leading Mining Company; house and office calls only; $9200; West.

Staff Physician: (82) Two required; prefer recent graduates interested industrial medicine as career; one of country's leading companies; outstanding opportunity to advance. Mideast.

Staff Physician: (83) With opportunity to quickly become assistant medical director; plantation medical program; medium surgical load; mostly dispensary practice; some calls; some administrative work; 35 bed hospital; well-staffed and equipped; inspected by us; opportunity to work with pleasant, well-qualified, medical director; comfortable home on well kept hospital grounds; fine social living with congenial Americans; lovely town near large city; tropical island of U.S. dependency; about $11,000 rising $1200 per year to about $16,000.

ly, with his friend's sleeping, Dr. Estabrooks then gave him some harmless candy pills to take when needed and told him he'd have no more trouble with coffee. He didn't.

—From a comment, in *Personnel Journal*, December, 1953, on an article by G. H. ESTABROOKS, of Colgate University, in *The Flying Red Horse*, house magazine of Socony-Vacuum Oil Company.

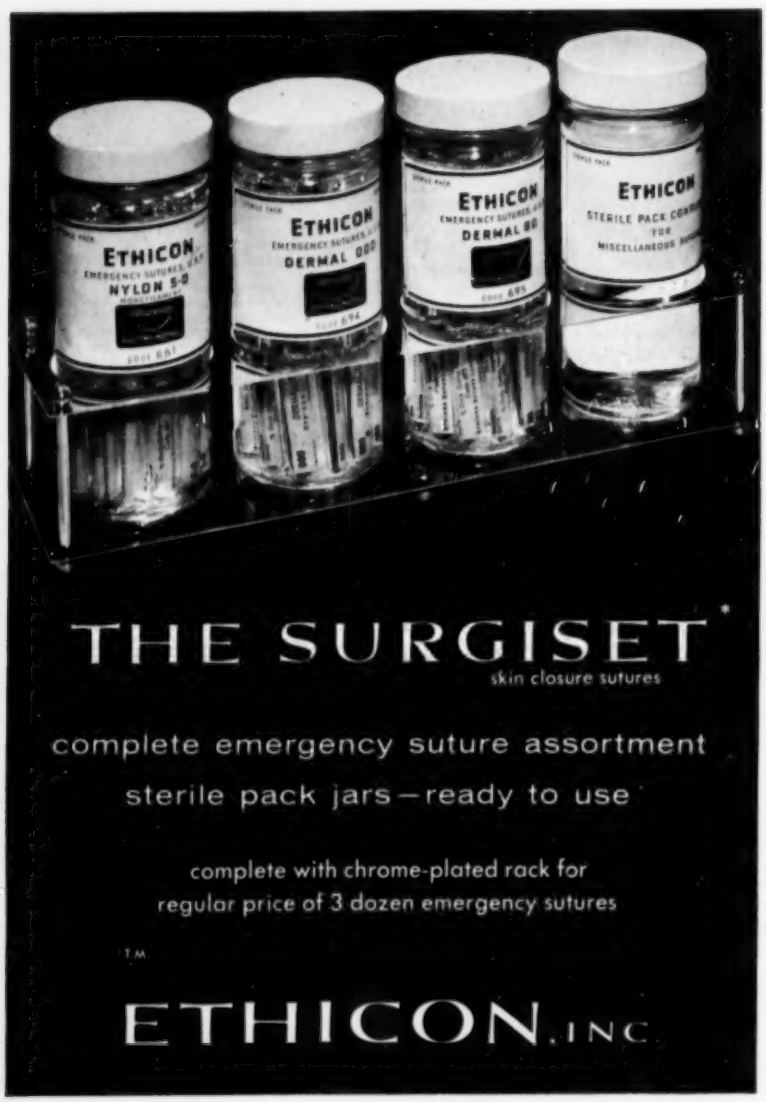
Visual Program

IMPROVED worker efficiency, reduction of accident hazards, and higher employee morale have resulted from the vision program begun by Cone Mills, Greensboro, North Carolina, two years ago. It is reported that employees now have greater confidence in their work, and their activities during off-hours are more enjoyable. Visual difficulties caused by trouble elsewhere in the body have been discovered; these have been treated as a result of the program. Some employees have been transferred to other departments where they perform tasks better suited to their visual skills.

—*Sight-Saving Review*, Winter, 1953.

Problem Drinking

CLINICAL Orientation to Problem Drinking, a course for industrial physicians, was given at Shadow Brook Health Foundation, Willowdale, Ontario, February 1-6, 1954, under the direction of R. G. BELL, M.D., Foundation Medical Director. Among the presentations were: "Toxicity of Ethyl Alcohol"—J. K. W. FERGUSON, M.D.; "Acute Intoxication: Case Studies"—H. WARD SMITH, M.Sc., Ph.D.; "Neurosis Plus Alcohol Addiction: Case Studies"—F. S. DAVIS, M.D.; "Early Recognition of Serious Psychiatric Disorders"—JOHN G. DEWAN, M.D.; "Early Recognition of Pre-Disease Drinking Patterns"—R. G. BELL, M.D.; "Use of 'Dip Profile' in Industry"—R. G. BELL, M.D.; "Alcoholic Liver Disease in Women"—JEAN DAVEY, M.D.; "Psychiatric Problems With Women Alcoholics"—S. J. HOLMES, M.D.; "Psychological Testing of Alcoholics"—J. ALAN LONG, M.A.; "Potential Role of Social Anthropology in Understanding Problem Drinking"—G. G. BROWN, M.A., Ph.D.; and "Summary of Clinical Techniques Applicable to Industry"—R. G. BELL, M.D. This course was established in response to requests from many industrial physicians; the need for it was revealed by the replies to the 1953 questionnaire sent out by the Committee on Problem Drinking of the INDUSTRIAL MEDICAL ASSOCIATION.



Retire—and Rehire

TO COME back to the question: "What can be done about it?" Maybe I have sounded as if nothing was in fact being done; and that's not so. In my own business, for example (which is the production of words in reasonably right order) there is no such thing as a compulsory retirement age—and a man can get a job at any time of life. Perhaps the newspaper world is an exception; but there are examples in different spheres. One of the big automobile factories in the United States has a special shop where nobody can be employed unless he's 65 or older; and the work assigned to the men in that shop, skilled work, is specially adapted to their experience and physical powers. I've read of

other companies which force retirement at 65—but then rehire anybody who wants to be rehired; maybe at lower pay, maybe not, but anyway at productive jobs yielding to the worker both the satisfaction of being useful and a higher income than the pension they would draw in retirement.

—From "Let Live . . . . and Let Work," by J. B. McGeachy, *Toronto Globe and Mail*, in *Health*, September-October, 1953.

Occupational Health Lectures

Six lecture sessions on occupational health are being proposed by the Commission on Industrial Health and Hygiene of the Medical Society of Pennsylvania in collaboration with the State Health Department's Bureau of Industrial Hygiene. The series is primarily for general practitioners, the majority of whose patients work in some industry, often without any occupational health service. The lectures will cover preventive medicine and rehabilitation, as well as the general practitioner's concern with management relationships. The proposal stems from emphasis of the AMA Council on Industrial Health on the role of the general physician in the area of occupational health.

—*GP*, January, 1954.

UMW Hospital Program

Washington headquarters of the United Mine Workers Welfare and Retirement Fund announces that November marked the start of construction on the last of the 10 hospitals being erected with UMW financing in Virginia, West Virginia, and Kentucky. They will be operated as a network with central purchasing, personnel, and pharmacy services. The 10 hospitals will have a total of 1,035 beds for miners and their dependents. At the recent AMA meeting in St. Louis, Dr. Elmer Hess, chairman of the Council on Medical Service, acknowledged that some doctors of dubious ethics were taking the miners' medical program "for a buggy ride," and that the union's decision to build hospitals was a consequence of this profiteering. He questioned, however, whether the expensive construction program might not bankrupt the Welfare and Retirement Fund.

—*GP*, January, 1954.

Allergies in the Office

Office workers sometimes get skin allergy from things they touch or handle—and it may be difficult to pin down the culprit. Writing in *J.A.M.A.*, DR. GEORGE E. MORRIS tells of a man who suffered from a skin rash for 11 years before it was discovered that he was allergic to rubber bands. Then he developed blisters from a green rubber desk pad. The skin cleared when the pad was removed. He got new rashes when the office was fitted out with green leatherette chairs. Finally he acquired a different chair and is now free of trouble. In another case, a girl clerk was allergic to the green paint on pencils; a stenographer to liquid soap; others to carbon paper, glue, or typewriter ribbons.

—*Management Review*, December, 1953.

Placebo Reactions

Toxic reactions may follow placebos as well as pharmacologically active agents, it was found in a study of 31 patients in the special medical outpatient clinic at New York Hospital. The patients received six batches of pills, identical in appearance. Some had Tolserol 0.5 gm., and some had inert material (lactose). The investigators did not

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3. Provides prompt, effective analgesia

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know which was which, and therefore, could not unintentionally influence the patient's attitude. Records were kept by code numbers. Patients before treatment were suffering from such disorders as peptic ulcer, migraine, muscle tension headache, and backache. All complained of anxiety and tension. Roughly 20 to 30% of patients were better while taking pills, 50-70% were unchanged, 10-20% were worse. Only three patients had major toxic reactions. One developed sudden overwhelming weakness, palpitation, and nausea within 15 minutes of taking the tablets, and another developed severe epigastric pain. In both these patients, reactions were identical after placebos and Tolserol. A third patient developed a diffuse itchy erhthematous maculopapular rash after 10 days of taking placebos.

—*Hospital Topics*, January, 1954.

Lower Back Study

HENRY H. KESSLER, M.D., founder and Medical Director of the Kessler Institute for Rehabilitation, West Orange, New Jersey, is undertaking a pilot study of lower back cases in workmen's compensation in New York, under the auspices of the Commerce and Industry Association of New York, and The Self Insurers Association. This study is an important phase of the Commerce and

In Peptic Ulcer management and in Hyperacidity, the *Non-constipating Antacid Adsorbant*

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Industry Association's special long-range survey of workmen's compensation costs and administration in New York State. Preliminary observations show that lower back cases are increasing at a rapid rate. The most prevalent type is that in which pain results from lifting or bending effort with no demonstrable evidence of injury to the spine, and such cases have an average duration of many weeks. Two types of cases encountered by insured and self-insured employers are to be analyzed—the bending-lifting group, where there is no demonstrable x-ray or diagnosis evidence of spinal trauma, and those where there has been a blow or direct injury to the spine. Comparisons will be made as to length of duration of care, nature of treatment, medical findings and the number of Workmen's Compensation Board hearings required in these cases.

How Long?

PROVERBIALLY, figures do not lie. They do, however, raise grave questions at times and portend ill for the future. In the 20 years just ended, for example, the government spent more than $775,000,000,000 and ran up a net deficit of more than $239,000,000,000. What happens next when your government spends in two decades almost half again as much as it was able to collect, despite steadily increasing taxes? Back in 1933 the national debt was a fraction less than $180 for each American. Today the figure exceeds $2,000. A typical family of 1933 with a $4,000 annual income paid $44 in Federal income taxes; now the sum approximates $500. Incredible as it may or may not seem with March 15 once more just around the corner, tax collections in the last fiscal year were 2,100 percent greater than in 1933. Such thought-provoking figures on government spending deserve careful perusal. Certainly they raise questions grave indeed, chief among them: How long can any nation stand such a trend without going bankrupt?

—*J. Florida M.A.*, January, 1954.

Fellowships in Industrial Medicine

INSTITUTE of Industrial Health of the University of Cincinnati is accepting applications for a limited number of Fellowships offered to qualified candidates who wish to pursue a graduate course of instruction in preparation for the practice of Industrial Medicine. Any registered physician who is a graduate of a Class A medical school and who has completed satisfactorily at least two years of training in a hospital accredited by the AMA may apply for a Fellowship in the Institute of Industrial Health. (Service in the Armed Forces or private practice may be substituted for one year of training.) The instruction consists of a two-year period of intensive training in Industrial Medicine, followed by one year of practical experience under adequate supervision in industry. Candidates who complete satisfactorily the course of study will be awarded the degree of

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The Sensitive Nurse

A NEW occupational hazard has been reported among nurses and doctors who handle streptomycin, penicillin, and other wonder drugs. These men and women are becoming sensitive to these products and every time they give an injection a rash develops on the face or around the eyes. The problem became so acute in England that the Ministry of Health conducted a survey among 146 hospitals and local health authorities. To their surprise, the survey uncovered a total of 256 cases. Many of the nurses became sensitized with the initial contact; others were able to handle the products for months or even years before the allergy appeared. Several recalled that dermatitis de-

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[1]*Jl. Inv. Derm.*, 17:125 (Sept., 1951)

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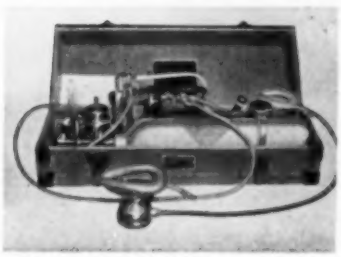

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veloped after the drug was inadvertently brought into contact with the skin or eyes. . . . The rash that develops is a typical contact dermatitis. The less sensitive exhibit redness and swelling of the skin with itching. The more extreme cases develop lesions resembling eczema or poison ivy. The hands, arms, face, or eyes were involved in practically every case.

—From Dr. Theodore R. Van Dellen's "How to Keep Well," *Chicago Tribune*, December 1, 1953.

Don't Do It Yourself . . . .

Doing it yourself has been a great and dynamic factor in our American economy. And now for the uppercut: The don't-do-it-yourself idea is even more important. That calls for explanation. While the do-it-yourself trend is a consumer movement, what we call the don't do-it-yourself idea exists in industry and distribution. It consists in not performing those services that others can do for you better and cheaper . . . . and in not making investments when renting or leasing saves money. Letting others do it is bigger than doing it yourself . . . . There's little difference between basic consumer and industrial positions, after a bit of analysis. A consumer may shine his own car, paint his own canvasses, or hone his own tools, but when something important happens he wants a specialist—a surgeon for his appendix, a dentist for his teeth, a lawyer for litigation. So it is in industry. A company will turn out pistols or pistons, carborundum or carbons, raiment or rails, with all the perfection and precision necessary to compete in the market . . . but when matters of law, taxes, auditing, engineering, advertising and other professional concerns arise, companies just don't do it themselves. Even advertising agencies retain other agencies to advertise them . . . . Smaller companies may benefit especially from services of specialists. A Labor Department study a few days ago showed that most scientists and engineers were employed by big companies and that only 4% were working for firms employing less than 100 persons. The same ratio probably applies to auditors, researchers, personnel advisers, and other experts . . . . A firm with fewer than 100 employees just can't hire all the specialists it ought to have. But it doesn't have to! A small company can turn to fee-basis services and obtain talents that are comparable to those large corporations get in salaried departments. And for the end results, a small company may pay proportionately less.

—*The York Report*, November, 1953.

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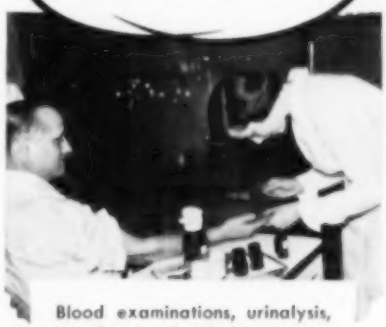

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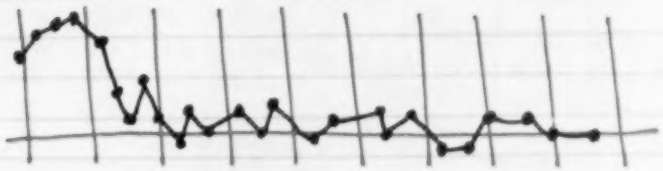

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1. Knight, V.: New York State J. Med. 50:2173 (Sept. 15) 1950.
2. Potterfield, T. G., and Starkweather, G. A.: J. Philadelphia Gen. Hosp. 2:6 (Jan.) 1951.
3. Swift, P. N.: Proc. Roy. Soc. Med. 44:1066 (Dec.) 1951.

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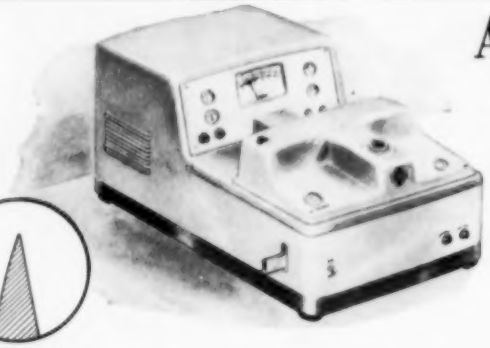
Bard Parker ... 45
Bauer and Black ... 22, 39
Bristol Myers ... 3rd cover
Cambridge Instruments ... 56
Carbisulphoil Co. ... 48
Chesebrough Mfg. Co. ... 38
Ciba Pharmaceutical Co. ... 4th cover
Davis and Geck ... 26-27
Desitin Chemical Co. ... 24
Dome Chemicals ... 47
Ethicon Suture Laboratories ... 44
Hillman Pharmaceuticals ... 52
Ille Electric ... 54
Keeley Institute ... 49
Kinney & Co. ... 35
Lilly, Eli, & Co. ... 40
Menley and James ... 54
Merck and Co. ... 34
Milburn Co. ... 54
Nepera Chemicals ... 36
Packwood, G. H., Mfg. Co. ... 50
Parke, Davis & Co. ... 9
Pfizer, Charles, & Co. ... 7, 15, 17-19, 51
Picker X-Ray Corp. ... 2
Professional Equipment Co. ... 5
Reece Wood Sole Shoe Co. ... 56
Robins, A. H., Co. ... 33
Roerig, J. B., & Co. ... 13
Schenley Laboratories ... 30
Schering Corp. ... 23
Sharp & Dohme ... 2nd cover
Shield Laboratories ... 55
Searle, G. D., & Co. ... 41
Smith, Kline & French ... 29
Stephenson Corp. ... 49
Teckla Garment Co. ... 56
Warner-Chilcott ... 46
Westwood Pharmaceuticals ... 31
White Laboratories ... 20, 21
Whitehall Pharmacal Co. ... 42
Whittier Laboratories ... 46, 48
Winthrop Stearns ... 25
Woodward Medical Personnel Bureau ... 43
Wyeth, Inc. ... 16, 53



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1. Hillis, B.R.: Lancet 1:1230-35 (June 21) 1952.

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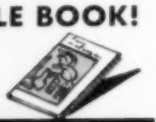

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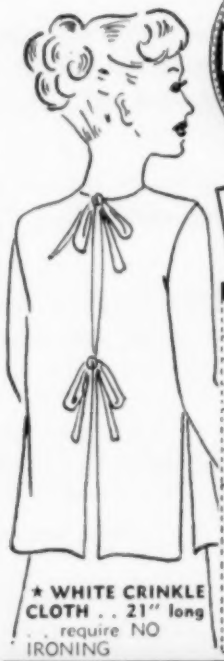

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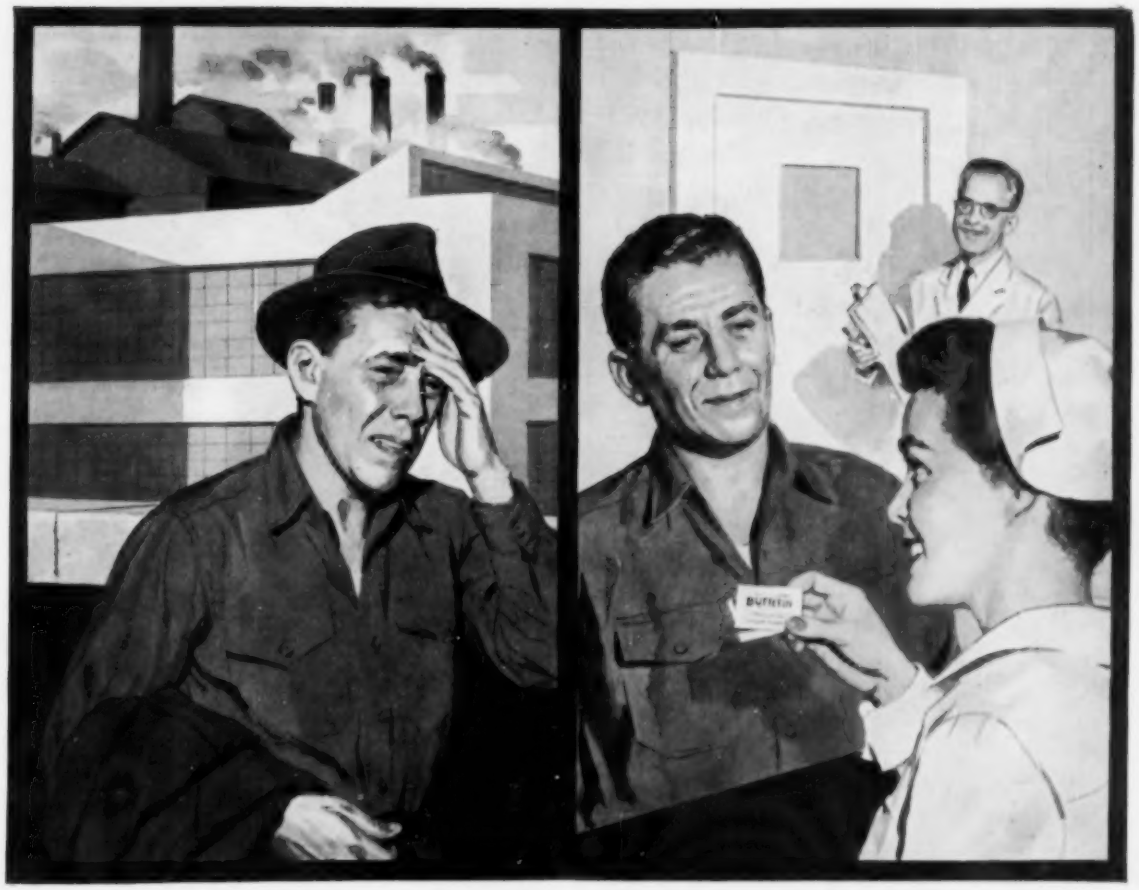

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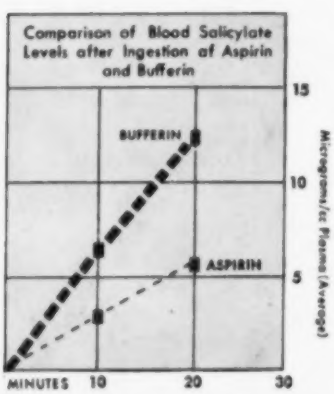

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REFERENCES: 1. Effect of Buffering Agents on Absorption of Acetylsalicylic Acid. J. Am. Pharm. Assoc., Sc. Ed. 39:21, Jan. 1950. 2. Gastric Tolerance for Aspirin and Buffered Aspirin. Ind. Med. 20:480, Oct. 1951.

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1. [illegible]
2. [illegible]
3. [illegible]

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